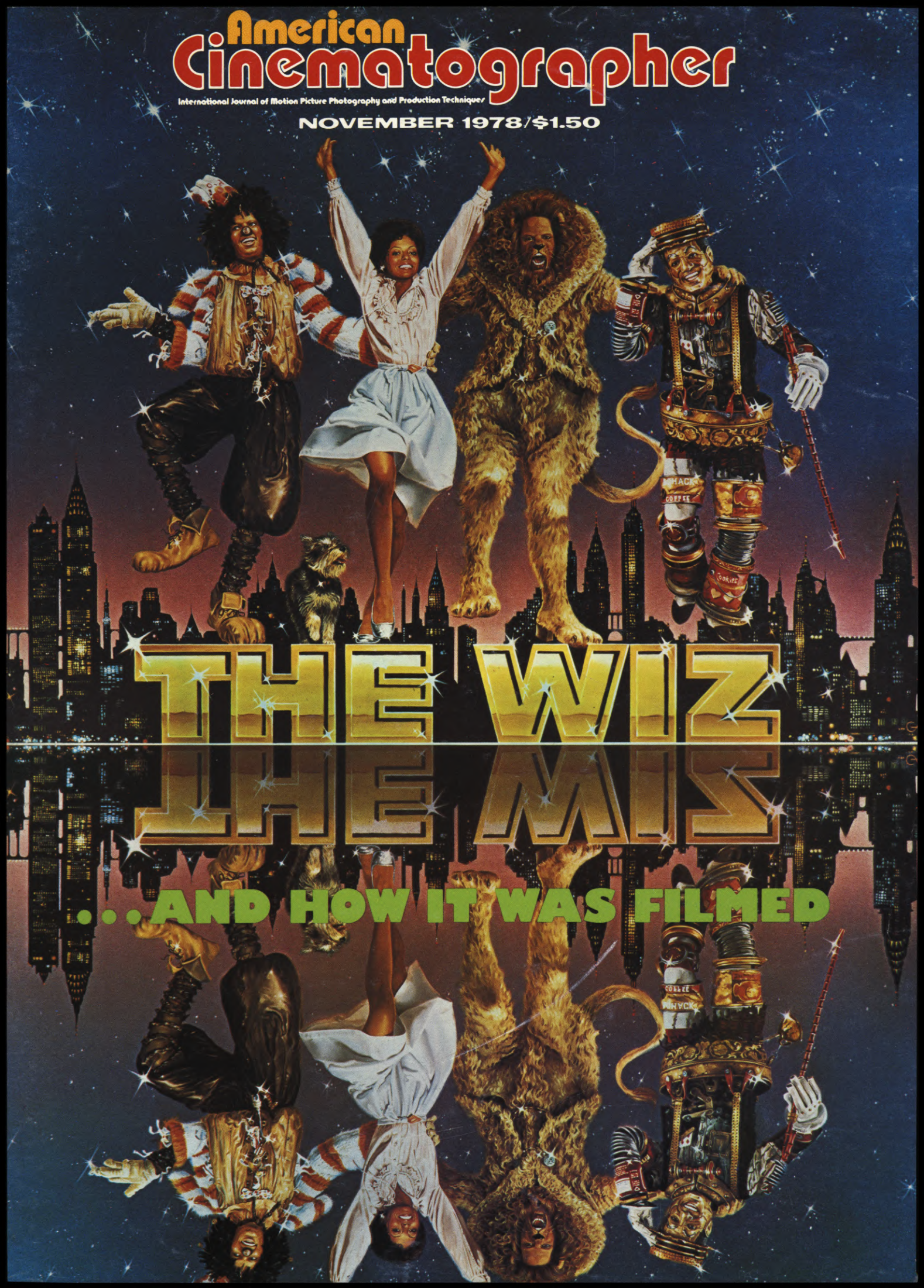
American Cinematographer
International Journal of Motion Picture Photography and Production Techniques
NOVEMBER 1978/$1.50



THE WIZ

...AND HOW IT WAS FILMED

An Oscar for STEADICAM™

For the first time in ten years, the Academy of Motion Picture Arts and Sciences has honored a technological achievement with a Class I Scientific/Technical Award...an Oscar© for the invention and development of Steadicam!

Steadicam, our unique camera stabilizing system, is an extremely versatile production tool, transforming practically *anything that moves* into an effective camera platform, saving countless hours in production time and reducing costs. And it accepts most portable 16mm, 35mm and video cameras currently in professional use.

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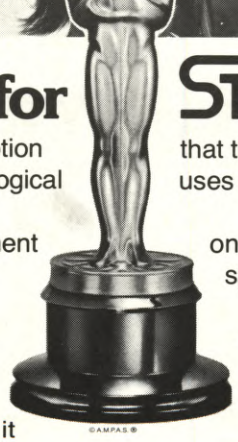
Steadicam has already made its dramatic impact on numerous award-winning feature films, television specials, documentaries and TV commercials.

As you plan your next production, don't make a move without first considering how you can use Steadicam to your best advantage.



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Technology In The Service Of Creativity

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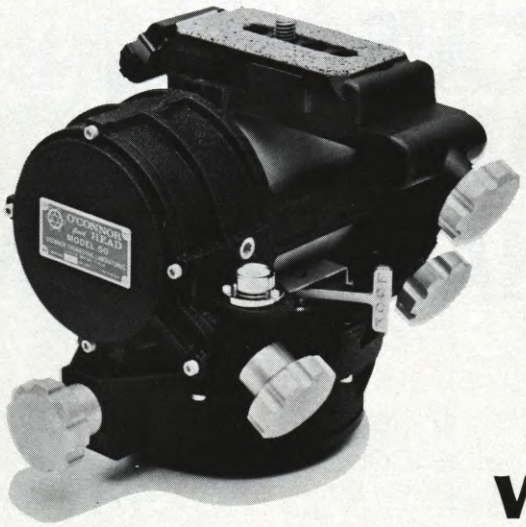


VERSATILE.

O'Connor Model-50. A fluid head with 378 combinations.

NEW, ADJUSTABLE BALANCE, QUICK RELEASE PLATFORM.

The Model 50-D Fluid Head can be ordered with one of six different platforms. Each has its special features and purposes, but our newest is the ultimate.

First, it has a unique camera mounting plate which can be attached to your camera in one of eight different positions. This is used to balance your camera on the head, greatly improving the head's performance.

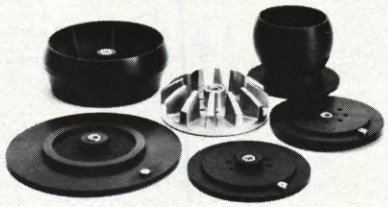
Besides an adjustable camera mounting plate, the entire platform (with camera atop) can be shifted

back and forth on the head so that you can find the precise center of gravity for whatever particular gear you're using at any given moment, such as heavy lenses, large magazines, etc.

It takes only a second to release your entire camera with O'Connor's new quick release option. To prevent accidental releases, it has a built-in safety feature.

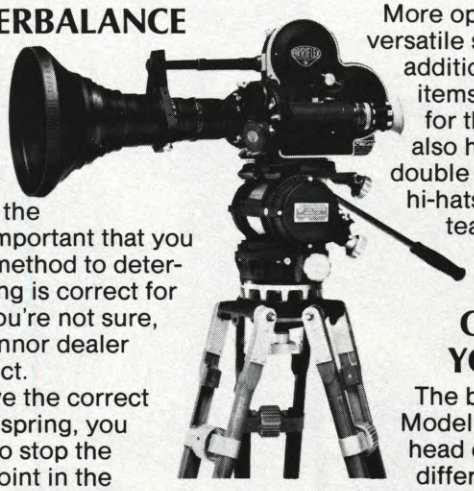
WITH BASES, WE'RE LOADED.

The Model 50 can be ordered with one of six bases. Besides two Pro Jr. types, Mitchell, Arri 16 and Arri 35, we also offer the O'Connor Claw Ball Base with the "ultra positive grip." The distinctive aluminum ridges



dramatically increase the holding power with far less effort needed to secure it in position. This Claw Ball design can also be adjusted ±15° to the horizontal plane within the top casting of the tripod to correct or alter your panning plane.

O'CONNOR COUNTERBALANCE DEFIES GRAVITY.



Three counterbalance spring options are available for the Model 50. It is important that you use the proper method to determine which spring is correct for your needs. If you're not sure, consult an O'Connor dealer or talk to us direct.

When you have the correct counterbalance spring, you should be able to stop the camera at any point in the normal tilting range and release the handle without the camera moving. And it should take no more effort to tilt it upward than it does to tilt it downward. We specifically design counterbalance into all our heads to correct this natural act of gravity so that your "tilts" are as steady as your "pans."

MORE CONTROLS FOR MORE CONTROL.

Like all O'Connor heads, the Model 50 is designed to provide maximum versatility. Separate controls for the pan drag, pan lock, tilt drag lock—all improve the flexibility and repeatability of camera movement.

O'CONNOR HAS MORE OPTIONS.

More options mean a more versatile system for you. In addition to some of the items already mentioned for the Model 50, we also have adjustable double video handles, hi-hats, cases, adapters, teak tripods and the ever amazing Hydro-ped.

ORDER IT YOUR WAY.

The basic O'Connor Model 50 fluid camera head can be ordered 378 different ways. If you're not sure how you want yours, maybe you should send for our brochure and price list to help you pick the equipment that's perfect for your needs.

O'Connor
FLUID CAMERA HEADS

O'Connor Engineering Labs., Inc., 100 Kalmus Drive, Costa Mesa, CA 92626 • Phone (213) 627-4057 • TELEX 685 641
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American Cinematographer

International Journal of Motion Picture Photography and Production Techniques

The American Society of Cinematographers is not a labor union or a guild, but is an educational, cultural and professional organization. Membership is by invitation to those who are actively engaged as Directors of Photography and have demonstrated outstanding ability. Not all cinematographers can place the initials A.S.C. after their names. A.S.C. membership has become one of the highest honors that can be bestowed upon a professional cinematographer, a mark of prestige and distinction.

NOVEMBER, 1978 **VOL. 59, NO. 11**

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ON THE COVER: The Scarecrow (Michael Jackson), Dorothy (Diana Ross), The Lion (Ted Ross) and the Tin Man (Nipsey Russell) romp toward the Yellow Brick Road searching for the Wizard of Oz in the Universal/Motown feature film version of the Broadway hit musical, "THE WIZ", directed by Sidney Lumet and photographed by Oswald "Ossie" Morris, BSC. Poster art courtesy of Universal City Studios.

AMERICAN CINEMATOGRAPHER, established 1920, in 59th year of publication, is published monthly in Hollywood by ASC Holding Corp., 1782 North Orange Drive, Hollywood, California 90028. U.S.A. **SUBSCRIPTIONS:** U.S. $9.00; Canada, foreign, including Pan-American Union, $10.00 a year (remit International Money Order or other exchange payable in U.S.). **ADVERTISING:** rate card on request to Hollywood office. **CHANGE OF ADDRESS:** notify Hollywood office promptly.

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EASTMAN 5243

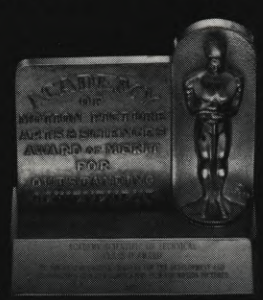
Color Intermediate II Film.

The award to Eastman Kodak Company from the Academy of Motion Picture Arts and Sciences is particularly gratifying to us, because Eastman 5243 film is the film "almost no one ever sees." As an intermediate film intended for making color master positives and color duplicating negatives, it is an *essential* element in getting the final picture on the screen.

Kodak now makes more than thirty professional motion picture films. Our search for improved motion picture technology is part of our commitment to the industry.

We set out to give filmmakers a way to produce color duplicate negatives with improved quality. This recognition by the Academy, as well as the satisfaction of our customers, is indeed rewarding.

We thought you'd like to read the opinion of some others in our industry.



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Frank Van der Veer, A.S.C.
President, Van der Veer Photo Effects.

"It's very annoying to send a lemon commercial to the lab and get it back looking like oranges. What makes Eastman 5243 film so helpful to all of us in the photo effects business is that it is about as true to color as you can get. You don't have to keep fiddling around to try and get face tones and objects looking right without sacrificing one or the other. The color you have in the original negative is the color you have in the duplicating negative.

"The grain is almost non-existent, and that is important because often we have to blow up the original.

"I like the definition, the crispness and mainly the dependability. We try hard to arrange it so as to wind up with as few generations as possible but sometimes a number of them is unavoidable. If there were any problem areas they would multiply, and it would be most noticeable in going from original negative to dupe.

"Eastman 5243 film doesn't surprise you in the viewing room. It does its job quietly and very efficiently."

Linwood G. Dunn, A.S.C., Ph.D.
Founder and President of Film Effects of Hollywood, and President of the American Society of Cinematographers.

"Kodak color intermediate II film 5243 is the film we now use to make duplicate color negatives... which are almost never noticed. Because of this achievement, I call 5243 intermediate the 'unsung hero' of film stocks, as it really helps us to realistically put our magic into movies. We can now retain in our special effects the color fidelity, sharpness and overall quality of the original photography through the duplication process without the risk of excessive handling of the original negative. We intercut 5243 optical effects next to the original negative, and you don't notice a change in screen quality. Without such a tool, the illusion we are trying to create could easily be destroyed.

"Two more important points: First, you can make a 5243 protection master of the entire production to store in a vault, thus substantially reducing insurance costs. Second, because of its increased film speed, the 5243 intermediate film is much more suitable for emulsion-to-emulsion contact printing, thus dramatically reducing transfer of any surface abrasions and imperfections from the original negatives that would be visible through the optical printing step required for the color reversal duplication system.

"As a member of the Scientific and Technical Awards Committee of the Motion Picture Academy, I strongly supported the award given Eastman Kodak Company for scientific achievement in its development of the 5243 intermediate, 'The magic film that nobody sees.'"

Robert Blalack
President, Motion Pictures, Inc. Oscar Award-Winner for Visual Effects on "Star Wars."

"When you want top screen quality in optical effects, you tackle all the components involved in the optical process—illumination, lenses, color separations and matte stocks. And then all your efforts end up on the dupe negative stock.

"Kodak asked me to test this stock just as *Star Wars* was getting under way. The results were impressive. Our travelling matte opticals became extremely sharp, and that added a new realism.

"The minimal grain and clear colors give you the feeling you are right there. Eastman 5243 film made a definite contribution to winning the Oscar.

"Eastman 5243 film is one full stop faster than its predecessor. That's an added plus, particularly when you are compositing from color separations, as I did in *Star Wars*.

"We had some scenes in *Star Wars* that were made up of 72 pieces of film—mattes, separations and intermediates. Every one of them was made on one of the vast selection of Kodak film stocks. But the stock that had to finally carry the ball was 5243.

"At Motion Pictures, Incorporated, we are committed to no-compromise, top-quality visual effects. And one key decision we have made—from experience—is to use the diverse and useful family of films from Kodak, of which Eastman 5243 film is a welcome newcomer."

If you would like to know more about Eastman color intermediate II film 5243, ask your Kodak sales and engineering representative at one of the offices listed below.

Kodak

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ATLANTA: 404/351-6510
CHICAGO: 312/654-5300
DALLAS: 214/351-3221
HOLLYWOOD: 213/464-6131
NEW YORK: 212/262-7100
ROCHESTER: 716/254-1300
SAN FRANCISCO: 415/776-6055
WASH., D.C.: 202/554-9300

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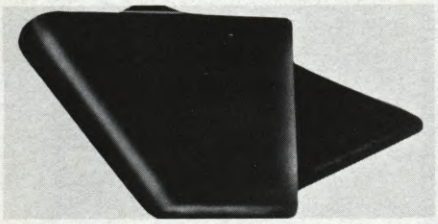
Kodak... Official motion picture consultant to the 1980 Olympic Winter Games.

WHAT'S NEW

IN PRODUCTS, SERVICES AND LITERATURE



ECCO POLISHING VELVETS

Polishing velvets are being offered by Electro-Chemical Products Corp., of 89 Walnut Street, Montclair, New Jersey 07042. These velvets are claimed to have a deep pile and are said to provide a velvet touch for dry-polishing movie film edges, lenses, and other delicate surfaces. Their deep pile readily absorbs dust and both sides can be used for polishing. Individually packed in dust-free poly bags, two sizes are available: style V66, 6" X 6" retails for $2.35 and style V612, 6" X 12" lists for $4.15.

•

DOCUMENTARY PRODUCTION FUNDS AVAILABLE

Production funds for new documentaries designed for national public television are available from the TV Lab at WNET/Thirteen in New York to independent film and video makers. The grant given to the TV Lab from the Ford Foundation and the National Endowment for the Arts is a continuation of the pilot Independent Documentary Fund established last year. Its mandate is to provide the independent with an opportunity to produce new innovative documentaries for the national public television audience and to expose that audience to the more personal, creative and provocative work of the independent.

To be eligible, you must be an independent film or video maker, a U.S. citizen or permanent U.S. resident, have completed at least one film or video tape for which you have had primary creative responsibility (which will be submitted as a sample of your work) and be interested in producing a documentary (not docudrama) for public television. There are no restrictions on subject matter. The work must pass FCC technical requirements, be standard television length (30/60/90 minutes) and be completed within a year.

We are particularly interested in supporting the more personal, more innovative work of the independent. We believe that this kind of television will be stimulating to the audience and demonstrate the tremendous creativity of the independent who defines the documentary both as an art form and as an alternative source of information.

Grants of up to $80,000 will be awarded for new projects and for works-in-process requiring more than $10,000 for completion. For information on how to apply for the December 1 deadline, please contact Katherine Kline, TV Lab at WNET/Thirteen, 356 West 58th Street, N.Y., N.Y. 10019. Awards will be announced in February, 1979.

•

"NEW GENERATION" CP-16R REFLEX CAMERAS

Cinema Products Corporation announces the immediate availability of the "new generation" CP-16R and CP-16R/A 16mm reflex cameras, which now incorporate several significant changes designed to improve CP-16R performance in extreme low-light conditions.

"All improvements have been accomplished without compromising any of the outstanding performance standards which have made the studio-silent CP-16R famous the world over. In fact, we've improved on these standards by making the CP-16R run more quietly than ever before," according to Ed DiGiulio, President of Cinema Products Corp.

"New generation" CP-16R and CP-16R/A cameras feature a newly designed belt-driven, focal plane-type, high-efficiency 170° shutter which provides approximately 10% more light to the film plane. (The elimination of one gear pass makes the new CP16-R even more silent in operation!)

Further enhancing CP16-R performance in low-light conditions is the new CP-16R standard viewfinder, which now features positive click-stop 90° rotation, and provides 12X magnification and a far brighter image than ever before.

Even the camera carrying handle has been re-designed. It is now larger and much more comfortable when toting the camera about.

"New generation" CP-16R camera prices start at $8100.

For further information, please write to Cinema Products Corp., 2037 Granville Avenue, Los Angeles, CA 90025. Tel: (213) 478-0711 and (213) 477-1971.

•

NEW STUDIO/LAB PROJECTION LENS

A totally new 35mm projection lens has been announced by Isco/Schneider of West Germany, with technical performance factors that establish it as superior to *any* previous lens for film inspection purpose. It is known as the Cinelux-ULTRA M.C. f/2.0 lens.

Its resolution tests provide unusually high results. In a still projection test using xenon "point source" illumination, and USAF-1951 test pattern, the 7-6 pattern can be easily reproduced on the screen. This translates into 228 line pairs per millimeter.

The contrast ratio of the Isco Cinelux-ULTRA is unusually high because spherical aberration has been essentially eliminated. The additional use of a new multi-coating for the anti-reflection surface substantially eliminates stray light in the formed screen image. The resulting black/white ratio and color saturation nearly doubles the usual contrast.

The lens design has been computer adapted to the film shape in the projector gate so that the center-to-edge focus is more exact than in any previous design for 35mm projection. This assures correct focus across the entire film format, and to the corners.

Its light transmission efficiency is much higher than in other lenses of the same f-number. In most cases, the new Isco Cinelux-ULTRA transmits 20% more screen light than conventional lenses.

The Isco Cinelux-ULTRA is now available in focal lengths of 60, 65, 70, 75 and 80mm (2.36" to 3.15") and the 95 and 100mm (3.75" and 3.95") lengths will be available in mid-Fall 1978. Other focal lengths are planned for 1979. Available through leading Theatre Equipment Dealers, it is distributed by Schneider Corporation of America, 185 Willis Avenue, Mineola, New York 11501.

For further information, contact: Mr. Glenn Berggren; (212) 895-3366. ■

MP-30

Portable 35mm Sound Projector Systems

The MP-30 Portable 35mm Sound Projector Systems offer quality combined with versatility never before available with this type of projection equipment. Designed for portable use, the MP-30 is equally suited for the office, home, school, screening room, business, industry as well as in standard or minisize theaters. Precision engineered throughout, the MP-30 is manufactured with the highest quality components and offers brilliance and clarity of picture unequalled by similar equipment. The projector is easy to set up and operate and while it has the capacity of the largest 35mm projectors, it is small enough in size to be transported in the trunk or back seat of an automobile. It has a minimum of moving parts and is readily adaptable to various modes of operation. Best of all, the MP-30 is priced to meet even the most stringent budget. The projector is offered in three basic models: MP-30S (Standard), MP-30M (Interlock-Magnetic/Optical) and MP-30X (Xenon Lamphouse).

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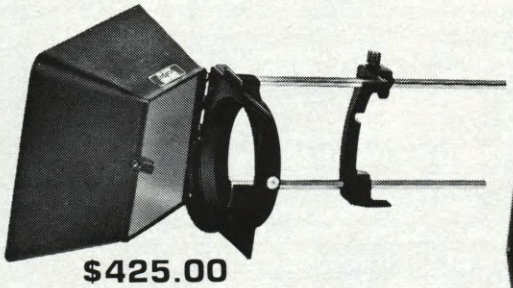
for ARRI II C



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for ARRI 35BL,16SR,
16BLEQ

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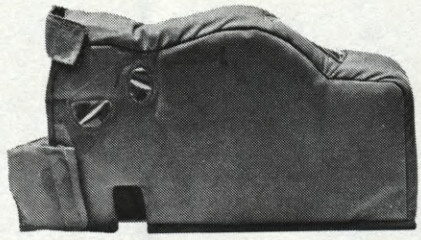
for Arriflex 16SR



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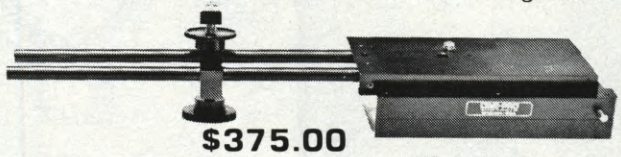

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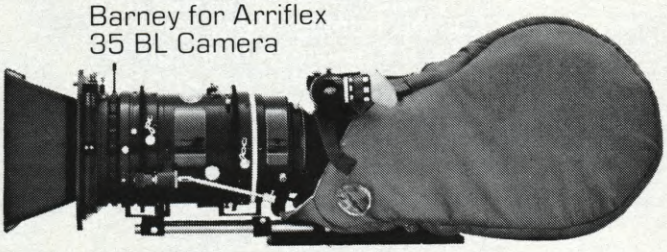
Barney for Arriflex
35 BL Camera



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1000 Ft – ~~$230.00~~ $129.00
Special Sale Price – Limited Supply

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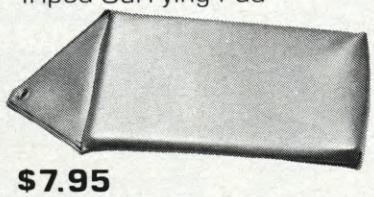

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** More about The Other End later.*

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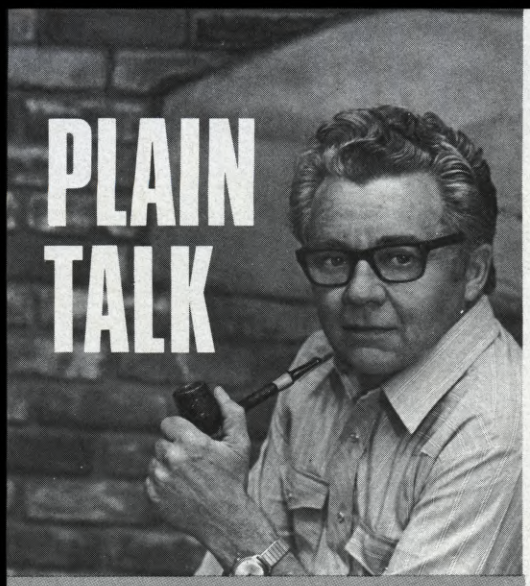

by J. Carl Treise

"Don't be fooled just because a manufacturer says his film processor is made of stainless steel."

Some people think that "stainless steel" is a magic ingredient.

They don't realize that it comes in many grades and thicknesses, and is often used improperly in a film processor.

For example, some manufacturers like to make the front panel out of 20-gauge stainless steel. Although it looks solid, the metal is actually so thin that any sharp object can penetrate it and thus damage the tanks and spill their contents.

Under certain conditions, lesser grades of the #300 Series will often rust.

In other words, stainless steel is only as good as the manufacturer wants it to be.

That's why you'll find only Type 316 stainless steel in Treise Processors. It's rustproof, corrosion-resistant, and passivated to remove contamination.

We use it in all our tanks (except the Neg. II Stop and ferri bleach tanks and the wash tanks that follow them; these are made of Hastelloy C or titanium).

Type 316 is more expensive than ordinary stainless steel, but it's your assurance of long life and trouble-free maintenance. (The next time someone makes a sales pitch to you, ask him what kind of stainless steel he uses in his processor and then listen to his alibis!)

The right materials . . . and the right experience. That's what makes Treise Film Processors so much better.

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PHONE: (213) 365-3124

QUESTIONS & ANSWERS

Conducted by CHARLES G. CLARKE, ASC.
and WINTON HOCH, ASC.

(Inquiries are invited relating to cinematographic problems. Address: Q. & A., AMERICAN CINEMATOGRAPHER, P.O. Box 2230, Hollywood, Calif. 90028.)

Q Is there an official repository in which a writer can legally establish his copyright of material that he has written (but not published) from which he intends to fashion a film script?

A The Writers Guild of America, West, 8955 Beverly Blvd., Los Angeles, CA 90048 has set up a Registration Service to establish the completion date of literary property such as film scripts. Registration does not confer any statutory protection, it only provides evidence of the writer's prior claim. There are charges for such registration. Write to the Writers Guild for complete details.

Q We are planning to film a sequence of the Solar Flare, using a Bolex RX 5 camera with 14 inch Celestrom Telescope. Could you kindly assist us to solve the following cinematographic problems.

1. What type of 16mm color film is used for photographing the Solar Flare, which is in the color region of H. Alpha light 6562 angstrom?

2. Is the color film a negative or reversal film?

3. What type of filter is used for the camera?

4. What exposure time is necessary per frame, as it has to be done in time-lapse cinematography?

A We suggest using a daylight type color film as this eliminates using a filter in the optical path with its tendency to cause flare in this type of subject.

Whether you use negative or reversal film depends upon your need for multiple prints.

As to exposure, our recommendation is to make tests as there are many variables in lenses, time of day and atmospheric conditions.

Q I have some 8mm film from which I would like to have a duplicate print made. Can you suggest a lab who could make a print?

A We are advised that the Cine Craft Laboratory, 3611 San Fernando Road, Burbank, CA 91505 is equipped to make 8mm prints provided the original is in good, unshrunken condition.

Q I would like to ask for an explanation of the A & B roll in editing film. I am an amateur and I use Eastman color film 7241 and Eastman Tri X for black and white film in the 16mm size with mag stripe. Do you think I can use the Micro Record System for developing color film.

A The A & B system for editing film is an absolute necessity for 16mm to achieve two objectives:

1. Making lap dissolves and fades without the aid of an optical printer.

2. Making splices invisible in the final print.

The arrangement can be explained by illustrations and text too extensive to be included in this column. You can find this material in practically any text book on film making, in the ACVL Handbook*, or in instruction sheets which may be obtained free from almost any professional laboratory.

The Micro Record System is specifically manufactured for processing Black and White films and is totally unsuitable for color.

*(Published @ $3.00 by the Association of Cinema & Video Laboratories, P.O. Box 34932, Bethesda, MD 20034.)

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follow focus
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DESIGNED
to fit
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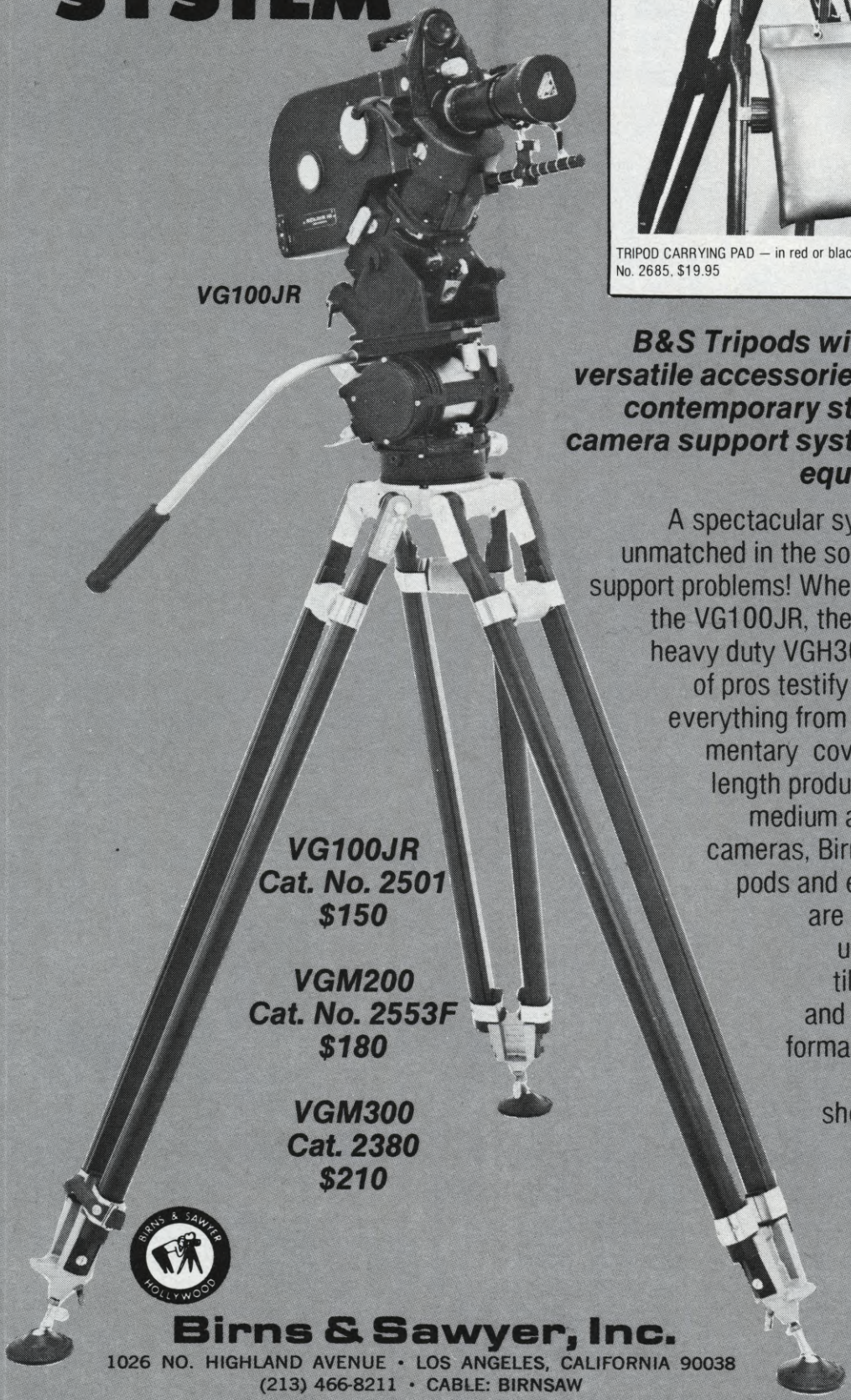
B&S TRIPOD SYSTEM



VG100JR

VG100JR
Cat. No. 2501
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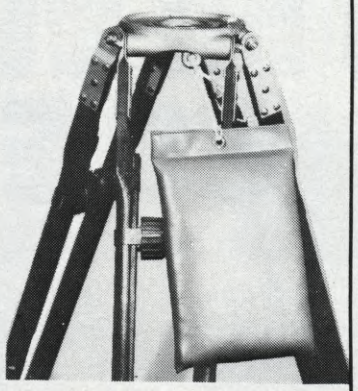
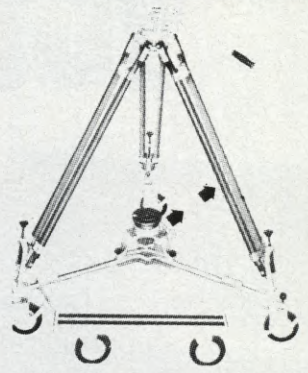
VGM200
Cat. No. 2553F
$180

VGM300
Cat. 2380
$210



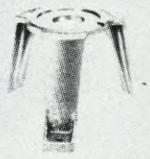
TRIPOD CARRYING PAD — in red or black. Catalog No. 2685, $19.95



The BIRNS & SAWYER SENIOR DOLLY for studio, industrial and location filming. Has exclusive hi-hat mounting bracket (see inset). Less Hitch-Hiker. Catalog No. 2200, $210. Less Hi-Hat

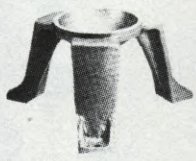
B&S Tripods with their many versatile accessories bring you a contemporary state-of-the-art camera support system you can't equal anywhere!

A spectacular system approach, unmatched in the solution of camera support problems! Whether you choose the VG100JR, the VGM200 or the heavy duty VGH300, a generation of pros testify to their utility in everything from news and documentary coverage to feature length productions. For light, medium and the heaviest cameras, Birns & Sawyer tripods and each component are designed for the ultimate in versatility, tough usage and sensational performance. Come in today and let us show you. Or write for free catalog.



Pro. Jr. and VG100 Jr. Hi-Hat, Catalog No. 1125, $36.

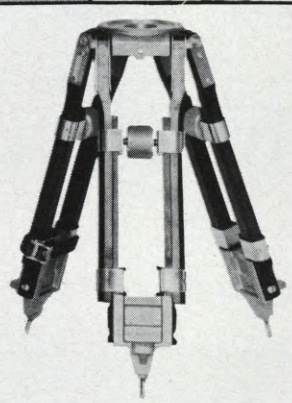
VGM200 Hi-Hat for hemispherical ball system, Catalog No. 1128, $40.



Hi-Hat for Miller Pro ball, Catalog No. 1131, $50.

Mitchell 35 Hi-Hat, Catalog No. 1126, $69.95

DITTY BAG with cover. $36.00 Catalog No. 2680-C.



VG100JR BABY, Catalog No. 2502, $150

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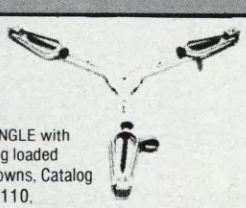
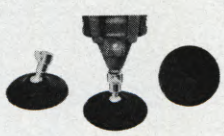


TRIANGLE with Spring loaded Tri-downs, Catalog No. 2110, $79.50

Ball Socket Hi-Hat for Arri 16 and other ball heads, Catalog No. 1123, $50. Ball is extra.



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Arri 35 Camera Riser to adapt 35mm cameras to standard pan heads, Catalog No. 1124, $59.95

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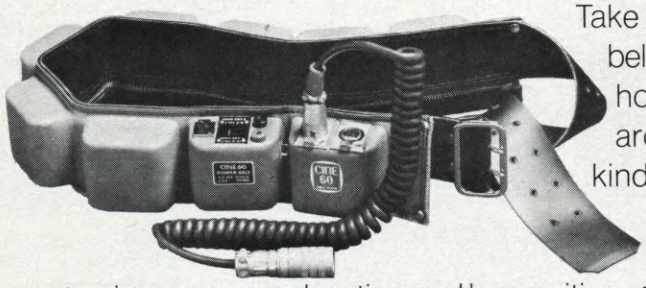
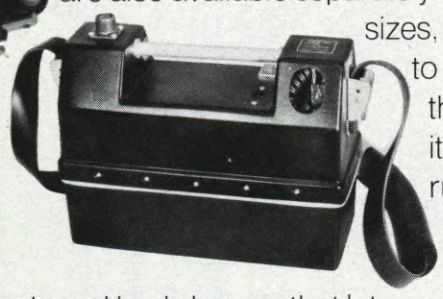
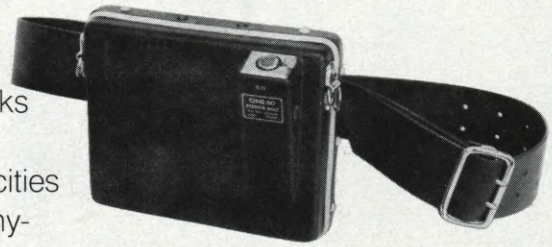
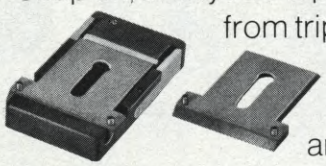
The things you're asked to do! Now that people have discovered how valuable and flexible video can be, there's no limit to the things they want you to do with it. Which creates some terrific opportunities...and more than a few production problems as well. At Cine 60, we're specialists in designing new products to help you get more of the former. With less of the latter.



Take power, for instance. Our rechargeable Powerbelts mean you *can* take it with you. More ampere-hours than ever before. Evenly distributed around your waist to give you the same kind of mobility TV film cameramen have relied on for years. Our fast-charge versions are at full capacity in just one hour, to give you more shooting and less waiting. □For more light on the go, compact Cine 60 Sun Guns fill the bill. Color-balanced for video, they give you lots of fresnel-soft lumens in the smallest spaces. Plus wide angle and focusing, too. □And if you prefer your Sun-Gun power packaged differently, we can give you Cine 60 NiCad reliability in a Powerpak/Sun Gun combination. □Our rechargeable Powerpaks are also available separately. In a variety of sizes, voltages and capacities to power just about anything you have in mind. Video. Audio. You-name-it. Just slip it on your belt or into a pocket...and go! □While our rugged, reliable power systems take a load off your mind, we can take a load off your shoulders, as well. With a complete line of comfortable shoulder pods and body braces that let you concentrate on what you're shooting...instead of your aching sacroiliac. Whatever the configuration of your camera, we've got a pod to match. □Cine 60 has a lot of other valuable tools to make life easier for video people. Like our Snaplok, to let you snap-on, snap-off cameras and other equipment from tripods, stands, pods, etc.—in less time than this sentence took to read. Plus suction mounts, compact quartz lighting... and that's just the beginning. With all the things you're asked to do these days, it pays to have all the help you can get. Why not call or write for our catalog today?







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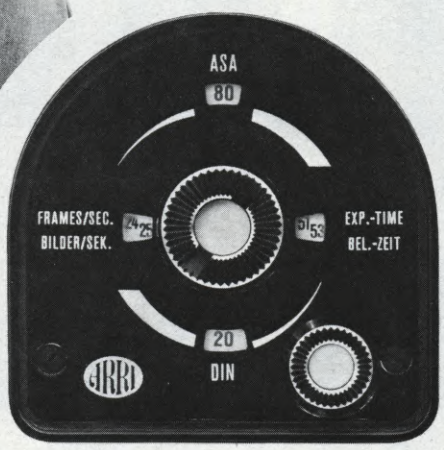
Veteran workhorse rejuvenated: Now you can add APEC to your 16S/B

The basic filming tool. 6 lb body, reflex viewing, pin-registered movement, tachometer, 100 ft daylight load spools.



Plus fiber optics, crystal control, and the many other components of the 16S/B system.

If your 16S/B is S/N 12001 or higher, you can buy a door with APEC built in.

The 16S/B is continually being updated. APEC is one example. Here are some others:

Fiber Optic Screens (with aperture markings) to replace your groundglass: Better light transmission, easier focusing. A Bridge Plate for balancing long lenses and mounting matte boxes. A crystal control Universal Motor (with Pilotone) that also runs at speeds from 0 to 50 fps and single frame.

APEC does *not* mean automatic exposure. It's a built-in meter with its needle visible in the finder.

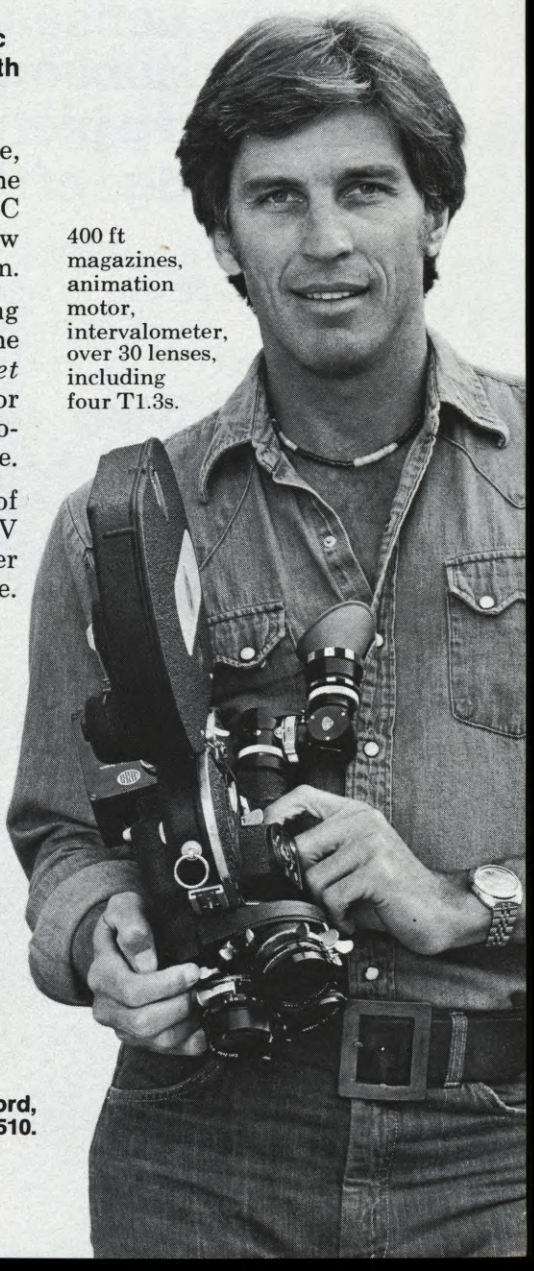
With your eye at the eyepiece, you can frame, focus *and* set the f stop. The through-the-lens APEC system tells you precisely how much light is getting to the film.

Zooming in for an APEC reading is a lot faster than walking onto the set. And sometimes it's not easy to *get* there. Shooting surgery, for example; or timber wolves. Or a speaker at the podium. Or fungus through a microscope.

APEC reads the central third of the frame, off the mirror shutter. UV rays are filtered out. ND wedges center the reading on the cell's response curve. APEC is *accurate*.

Periscope viewfinder attachment.

12V DC Crystal Control Motor



400 ft magazines, animation motor, intervalometer, over 30 lenses, including four T1.3s.

Reports of its death have been exaggerated: 16S/B

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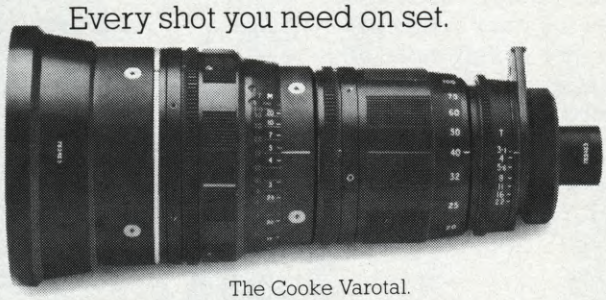
Cooke Lenses from Taylor Hobson, give you pin sharp pictures right to the edge of the field.

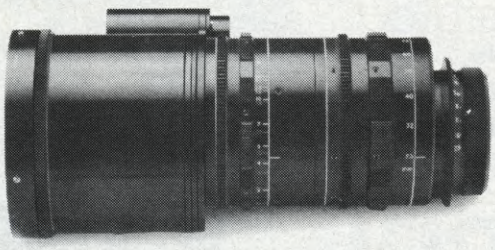
Take the Cooke Varotal. Gives you the finest resolution in the world of 35mm zoom lenses.

Every shot you need on set.



The Cooke Varotal.

Add the Cine Varotal. Sharpest 10:1 35mm zoom lens in the world. All the location shots you could possibly want.



The Cine Varotal.

Then there's the 16mm Cooke Varo Kinetal. The only zoom lens to give you 35mm professionalism from 16mm film.

All three match up with the new generation of film emulsions.

The Cooke Varo Kinetal.

All three hold focus throughout their entire zoom ranges.

And though they're precisely engineered they're ruggedly built for professionals who really want to use their lenses.

Cooke is the name. Cooke is the image quality.

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Rank Taylor Hobson, P.O. Box 64, Stoughton Street, Leicester LE2 0SP, England.

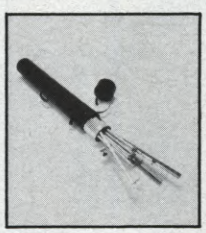
Lowel Softlight 3 Kit, empty and full

An open and shut case

Performance is crucial. But well designed location equipment must also take portability into account. Example: a softlight, by its very nature, must be large. The bigger the source, the softer the light...and generally, the bigger the problem transporting it.

Our softlight is large. Yet our softlight is easily transported. It's designed to fold in half, almost flat. It weighs far less than ordinary units, yet has a higher foot-candle-to-watt ratio. And three units fit in one case.

Another example of truly functional design is the big Lowel sun reflector—Variflector II. It has flood control, a washable surface, and rolls up to a fraction of its in use size.



With these and other Lowel systems, you never have to choose between portability and performance.

We rest our case.

For equipment and kits see an authorized Lowel dealer. For brochures contact us. Lowel-Light Manufacturing Inc. 421 West 54th St., N.Y., N.Y. 10019 212 245-6744. Telex: 666597 UW. West Coast: 3407 W. Olive Ave., Burbank, Calif. 91505. 213 846-7740

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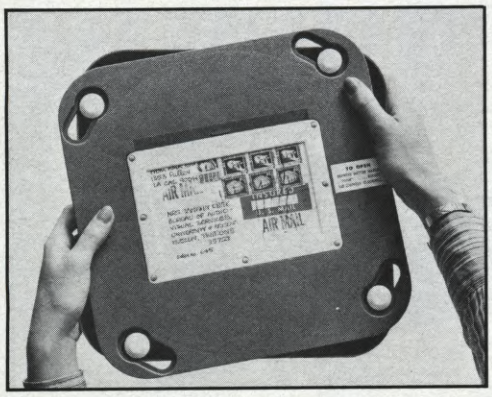
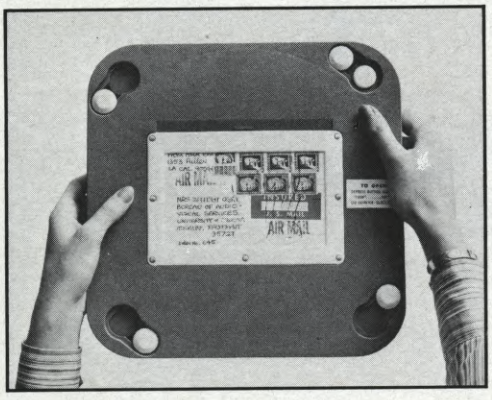




The new Goldberg fast lock case: It locks at all four corners with one push-turn movement.

Until now, your shipping people have *left the case lids loose* after checking returned prints. Why? To save time and fingernails. Their fingernails. Your time.

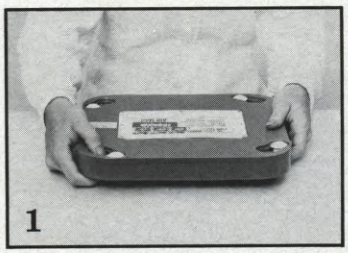
This case isn't just easy to close. You can also *see* that it's closed.

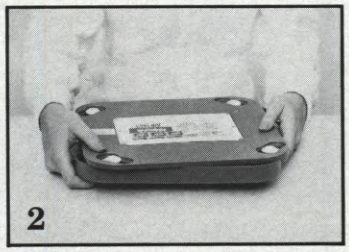
Mail

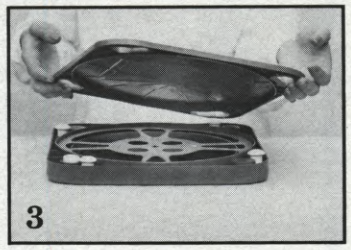
Some old-style cases have *four* catches to be turned – and the catches look about the same open or closed. So customers sometimes return prints through the mail with the lids unlocked!

Stiff

Even when they *do* lock them – "I dread having to twist all those stiff little plastic locks and then pry off those lids," says Sandy Morehouse of Motivational Media in Hollywood.

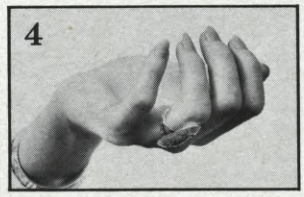






How to open it:

1. Press down the lock button marked PUSH.
2. Turn the lid until the other four buttons are at the big end of their slots.
3. Lift off. Turned, the lid sticks out 5/8 inch, so it's easy to grab. (Incidentally, any corner of the lid fits any corner of the case.)



No broken fingernails

Durable

The case is made of molded polyethylene. Lightweight – and slightly flexible, the better to absorb life's hard knocks.

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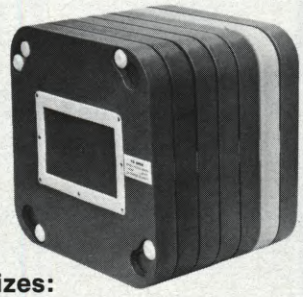

Cases are square, so you can stack them upright, like books.

These are also *storage* cases. Prints filed on edge are much easier to get at, obviously.

Sizes:
From 400 to 2000 feet, in five standard colors.

***Inside* the case: a dust proof circular "film-can."**

The inner "can" is 1 1/8 inches deep. And there's a lip on the case lid that fits tightly over it.

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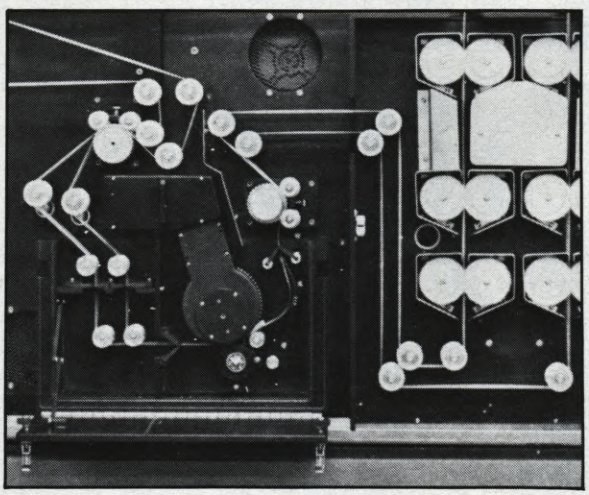
You would expect MPL to have high-speed, total immersion wetgate printing.

We do.



Total immersion wetgate printing. The most advanced method yet devised for creating flawless prints. Surface imperfections, even microscopic scratches, vanish as each frame is photographed in a bath of special solvent. The theory of wetgate printing is not new, but the technology is. At MPL, maintaining unsurpassed quality means continually refining our operations with the most advanced equipment. Like a Hazeltine Color Video Analyser with tab-free cueing. A custom-designed Magna-Tech sound mixing system. And pressurized, dust-free conforming rooms. In every department, MPL keeps abreast of the latest technology to assure absolute satisfaction. Total immersion wetgate printing. Of course we have it.

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CINE-CRAFT LABORATORIES, INC., 45 North Texas Avenue, Orlando, Florida 32805, (305) 298-0012
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It's a success story that will bring a smile to your lips, next time you're planning a shoot: How Camera Mart, the west-side professional equipment supply house, became the leading source for motion picture and video equipment in the East. Keeping production companies on schedule under the most demanding conditions. Supplying them with the latest equipment for rent or sale, maintained by factory-trained technicians. Offering the kind of professional know-how and personal attention you can depend on.

It's a story of the legend on 55th Street. Next job, why not make our success story part of yours?

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THE BOOKSHELF

By GEORGE L. GEORGE

FILMMAKERS ABROAD

Activities of foreign directors are generally reported in this country on a spot news basis. Ingmar Bergman's income tax case, Pasolini's sensational murder, Rosselini's romances are more familiar to us than insightful appraisals of their work. Individual films—because of their import potential—are sometimes mentioned, but their director's standing in his own country is hardly ever discussed. The books reviewed here attempt to correct this oversight.

From the British Film Institute, two volumes distributed here by N.Y. Zoetrope (31 E. 12 St., NYC 10003): LAUNDER AND GILLIAT by Geoff Brown presents a well-known directorial team functioning generally as writer-directors. Their cinematic versatility whether in theme, concept or style has earned them an eminent place in British films ($3.50). In PIER PAOLO PASOLINI, Paul Willeman offers an in-depth investigation of the Italian director's career, whose socio-philosophical approach to filmmaking is deeply imbedded in his country's cultural heritage ($3).

From the Canadian Film Institute (75 Albert St., Ottawa, Ont.), two studies: RICHARD LEITERMAN by Alison Reid and P. M. Evanchuck deals with an outstanding Canadian cameraman, whose creativity extends from newsreels and documentaries to dramatic features ($5.50). THE FILMS OF DON SHEBIB by Piers Handling examines with considerable insight the characteristics of Shebib's directing style, his subtle manipulation of moods that stimulates the spectator's sense of participation ($5.95).

Four generally bilingual brochures from La Cinémathèque Québécoise (360 McGill St., Montreal, P.Q.) show that institution's broad interests. GILLES GROUX, edited by Jean-Pierre Bastien, surveys the director's work in his often anguished search for the French-Canadian identity ($1.50). In BERNARD GOSSELIN, Jean-Pierre Bastien has assembled an interview, testimonials and a filmography of the cameraman/director whose style and work methods sensitize the audience's inquisitiveness ($1.25).

An early Quebec animator is rediscov-

ered in André Martin's IN SEARCH OF RAOUL BARRE, whose main contribution was a method of positioning cells in order to obtain smoothness of movement, which he perfected in 1914 in his Bronx studio ($1.25). In THE IMPORTANCE OF OSCAR FISCHINGER, William Moritz and André Martin survey the work of the German animator, whose abstract visual rendering of music created a genre in itself ($1.25).

★ ★ ★

NATIONAL CINEMAS

In SWEDISH FILMS 1978, Gun Hylten-Cavallius presents an overview of that country's feature film production, a promising collection of unusual and highly diversified pictures. Statistics on production and distribution, and essays on Swedish films and personalities complete this attractive brochure (Swedish Film Institute, Stockholm).

Before the fascist coup in Chile, film production flourished there, as appears in Michael Chanan's factual report, CHILEAN CINEMA. Interviews with filmmakers in exile follow an historic background about the nation's economy and film production (BFI/N.Y. Zoetrope $3).

Two partly bilingual publications from La Cinémathèque Québécoise, PORTUGAL, edited by André Paquet ($1.50), and LE CINEMA HONGROIS, edited by Pierre Veronneau ($2.50), trace the development of films in these lands. Both published on the occasion of retrospective showings, they provide an illuminating commentary of the technical, economic and ideological approach to filmmaking, as expressed in interviews with leading personalities.

★ ★ ★

IN AND AROUND THE INDUSTRY

Michael F. Mayer, in the 2nd revised and enlarged edition of his classical study, THE FILM INDUSTRIES, diagnoses the business and legal problems of production, distribution and exhibition. His book is an eminently practical guideline to the intricacies of the business, elucidating perplexing situations and warning of potential pitfalls. Every aspect is essentially covered in this thoroughgoing and authoritative text (Hastings House $11.50/5.95).

John Willis's annual record film production, SCREEN WORLD 1978, offers its usual informative and entertaining survey of last year's crop. Hundreds of stills illustrate this extensive survey, complete with production data, cast-&-credits lists, and other relevant items (Crown $12.95).

Cinema's self-image in films has been faithfully reflected in an engaging and solidly documented book, HOLLYWOOD ACCORDING TO HOLLYWOOD by Alex Barris. This film business fascination with its own personality has taken many shapes from the trivial to the tragic and from the sentimental to the sordid, all valid metamorphoses in the context of a multifaceted industry (Barnes $17.50).

Impartially buttressed by adverse quotations from leading film critics, two teenage films buffs, Harry Medved and Randy Dreyfuss have compiled a witty and sophisticated volume, THE FIFTY WORST FILMS OF ALL TIMES. From D. W. Griffith's *Abraham Lincoln* to Richard Donner's *The Omen,* this is a fielder's choice type of selection, with the reader invited to participate in a forthcoming "worst film poll" (Popular Library $6.95).

Patricia Erens, in THE FILMS OF SHIRLEY MacLAINE follows the career of the performer from her chorus line days to dramatic film parts. A biographical introduction is followed by a detailed survey of the 30 movies in which MacLaine appeared since 1955 (Barnes $17.50).

Gene Autry's autobiography, BACK IN THE SADDLE AGAIN (written with Mickey Herskowitz) is an engaging and unassuming book, tracing the career of the original singing cowboy of film. It is notable for its accurate evocation of Hollywood's early days, when determined ambition and common luck stood in sharp contrast to today's wheeling-dealing ways (Doubleday $8.95).

In DEBORAH KERR, Eric Braun goes over the star's Anglo-American career with a fine sense of respect for Kerr's private life, while discussing perceptively her screen and stage appearances (St. Martin's $8.95).

The paperback edition of Evelyn Keyes' sensational and explicit autobiography has just been published: SCARLET O'HARA'S YOUNGER SISTER, where off-screen romances and marriages outnumber the films she made. The quality of the writing and its basic honesty make this a truly unique confession (Fawcett $2.25). ■

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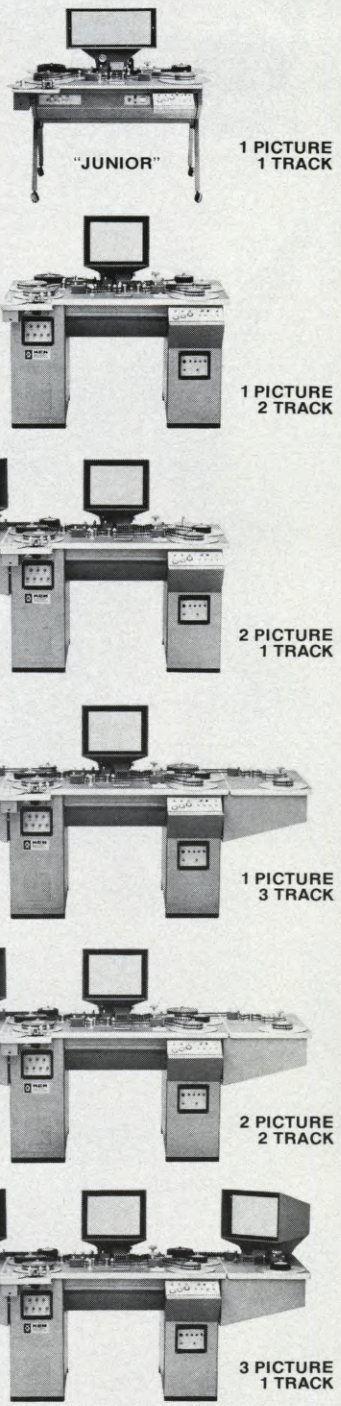

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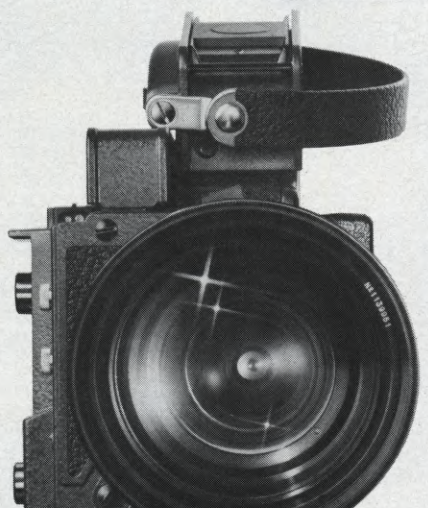

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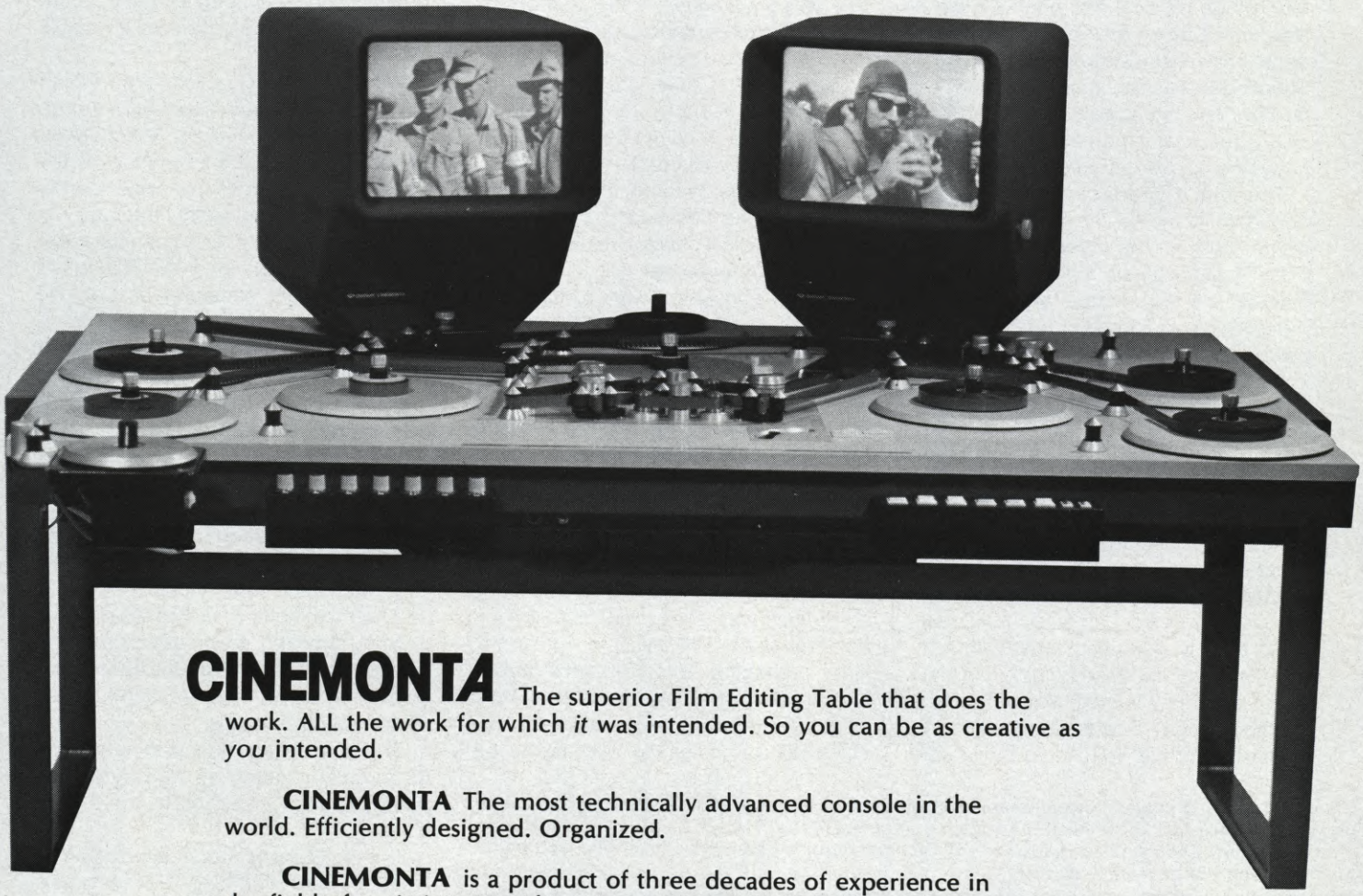

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BEHIND THE SCENES OF "THE WIZ"

The most ambitious (and expensive) feature ever shot entirely in New York, this film adaptation of the award-winning Broadway musical hews faithfully to the concept of Baum's original book

"THE WIZ" is based on an American success story which has delighted the world in various guises since its first appearance at the turn of the century.

Now the 1900 novel by L. Frank Baum, "The Wonderful Wizard of Oz" and the 1975 stage musical has been filmed in New York City by director Sidney Lumet as a Universal-Motown production. Shooting began at Astoria Studios and on New York city streets on October 3rd, 1977, for a thirteen-week schedule budgeted at over ten million dollars.

The film's producer, Rob Cohen, hoped to combine the magic of such movie musicals as "West Side Story", "The Sound of Music" and the 1939 Judy Garland classic "Wizard of Oz" into a motion picture already destined as a screen classic.

For the cast, Lumet and Cohen combined the outstanding black entertainment talents of our era—Diana Ross as "Dorothy", Richard Pryor as "The Wiz", Lena Horne as the good witch "Glinda", 19-year-old Michael Jackson as "The Scarecrow", Nipsey Russell as "The Tinman", and from the original stage production, Ted Ross as "The Lion" and Mabel King as the bad witch "Evillene".

An entirely new script was written by Joel Schumacher based on precepts laid down by Sidney Lumet: "We will be true to three things—The original book by L. Frank Baum, the WIZ score by Charlie Smalls, and the talents of Diana Ross."

Out of this grew an "urban fantasy" with Miss Ross playing a 24-year-old school teacher living in Harlem who is whisked into the vortex of a snowstorm that takes her and her pet schnauzer Toto on an adventure in the land of Oz, which resembles nothing so much as the Big City turned upside-down and sideways by Lumet, Cohen and the concepts of production designer Tony Walton.

For the project, Lumet assembled previously tested collaborators like Walton, Ossie Morris as Director of Photography, Dede Allen as film editor, and Quincy Jones as musical director. Louis Johnson was the choreographer.

Fifty-two sequences were plotted, with 32 on exterior locations and 20 built at the newly-revitalized Astoria Studios, which were originally opened in 1920 by Paramount Pictures. For the yellow brick road, Congoleum supplied 26 miles of yellow vinyl worth $237,000.

The vast project began to take shape in May 1976 when Motown producer Rob Cohen and Universal's Ned Tanen negotiated the screen rights with Ken Harper, producer of the seven Tony Award-winning stage musical. Cohen had first seen "THE WIZ" in April 1975, when casting his "BINGO LONG" film for Universal. Ted Ross and Mabel King were signed for his movie and the show classified as something that had to be done—but how?

Though he had never directed a musical before, Sidney Lumet instantly agreed to undertake the project. A few months later, a Motown contractee of sixteen years' duration, Diana Ross, had a dream—she would play Dorothy. Scripting and preparation began on February 8, 1977.

With "THE WIZ", Lumet and Cohen and their team have tapped into a great *living* American classic, which every generation since the beginning of this century has told in its own way. "Certain stories are eternal," says Producer Cohen. "Every culture develops interpretative myths which lend themselves to adaptation and reinterpretation. It was inevitable for Oz to be set in New York. In Baum's classic, the characters have to go to the city to get the answers. Today's urban culture is black-oriented, affecting all life styles, language and music trends. Hence, "The Wiz".

ASTORIA STUDIOS

Production headquarters for "THE WIZ" were located at the Astoria Studios in Long Island City, Queens. Located here were the offices during the preparation and shooting, the art department and set construction for exterior elements of the decor, as well as the stages for the major interior settings.

The studios are fifteen minutes from Midtown Manhattan via the Queensboro Bridge and are accessible by two subway lines.

Construction of the studios began in 1919 by the Famous Players-Lasky Corp., which became Paramount Pictures, and they were opened on Sept. 20, 1930, as East Coast production headquarters. As the need for stages grew, Paramount built new studios in Hollywood in 1927 and Astoria went into gradual eclipse.

Shortly after the outbreak of war, the studios were sold to the War Department and became the headquarters for the Army Signal Corps from 1942 to 1970. During peak activity, more than 300 training films a year were made there.

The federal government declared the studios surplus property in 1970. In 1972, they were given to the City University of New York, which returned the property to the government in 1976, without ever finding a use for the buildings.

However, the Mayor's Office of Motion Pictures and Television found tenants for

On the sound stage of the venerable Astoria Studios in Long Island City, Queens, technicians check out the installations that give electrical life to "THE WIZ", which is actually an enormous 25-foot silver sculpture of Richard Pryor's head, with laser-like spotlights beaming out of the eye sockets.

(LEFT) In a light moment, Director Sidney Lumet clowns it up on the set. (RIGHT) More seriously, Lumet, a meticulous craftsman, lines up a camera angle. Although he had directed vehicles as diverse as "THE PAWNBROKER", "NETWORK" and "EQUUS", he had never in his 20 years of directing for the big screen attempted a musical before "THE WIZ". The film version of "THE WIZ" is different from the stage version, as well as the 1939 MGM musical, but Lumet insists it will put across the point of the Baum story more clearly than any of its previous incarnations.

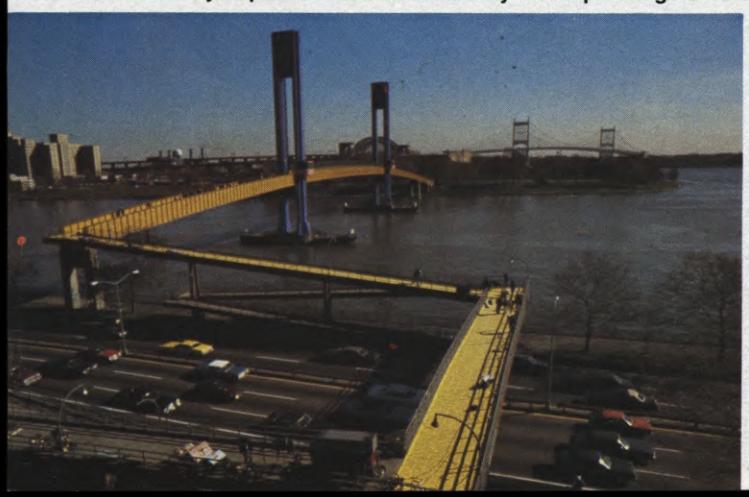
Having been scooped up in the whirling vortex of a snowy tornado outside her Harlem apartment, Diana Ross as Dorothy is propelled into a bizarre setting that looks like a children's playground, but is covered with colorful graffiti. This is Munchkinland, and the Munchkins of this filmed version are raggedy street urchins who materialize out of the graffiti-crowded walls. This set is actually the former New York State Pavilion at the World's Fair grounds in Flushing Meadow—considerably reworked for the occasion.

the studios, which were employed for feature films, Paramount's "THIEVES" with Marlo Thomas and Charles Grodin in 1975 and Allied Artists' "THE NEXT MAN" with Sean Connery in 1976, and by the educational television station, WNET.

In December 1976, an agreement was reached with the federal government, the City of New York, representatives of the film industry and the unions, for an interim lease with the Federal General Services Administration with the intention of reactivating the stages for commercial motion picture production. An application has been made to designate the property as a National Historic Landmark so that it may be operated by a non-profit foundation. Revenues from stage rentals would be applied to preserving the studio, operating educational

Continued on Page 1104

Acting on instructions given her in Munchkinland (Graffiti City), Dorothy and her new-found friends follow the Yellow Brick Road in quest of the Wonderful Wizard of Oz. It leads across bridges, through Coney Island and down a subway, paved with 26 miles of special yellow linoleum furnished by the Congoleum Co. at a cost of almost a quarter-of-a-million dollars. The effect of the Yellow Brick Road was considerably expanded and enhanced by matte paintings created by Albert Whitlock at Universal City Studios.



PHOTOGRAPHING "THE WIZ"

Famed British cinematographer, who had met almost every conceivable challenge during his illustrious career, encounters the greatest of them all in transforming Manhattan Island into the Land of Oz

For many years in the top rank of England's extraordinarily talented Lighting Cameramen, Oswald "Ossie" Morris, BSC, has earned a reputation as a daring innovator, due to his willingness to experiment and employ unconventional techniques in his quest for exactly the right visual effect to portray each film subject. This artistic inventiveness has been evident in such distinguished vehicles as "MOBY DICK", "MOULIN ROUGE", "REFLECTIONS IN A GOLDEN EYE", "THE TAMING OF THE SHREW", "OLIVER!", "GOODBYE MR. CHIPS", "SCROOGE", "FIDDLER ON THE ROOF" (for which he won the 1971 "Best Achievement in Cinematography" Academy Award) and "EQUUS", among many others.

During the course of the following interview, conducted in London by *American Cinematographer* Contributing Editor David W. Samuelson, Mr. Morris discusses in depth his latest and most demanding assignment—that of Director of Photography on Sidney Lumet's spectacular screen version of the hit stage musical, "THE WIZ":

DAVID SAMUELSON: Ossie, the first question that comes to mind in thinking about "THE WIZ" is: what relationship does it bear to the original Judy Garland "WIZARD OF OZ" film?

OSWALD MORRIS: I think the only similarity between "THE WIZ" and the original "WIZARD OF OZ" is that the four central characters remain more or less the same. The music is completely different; it is a fresh score; the backgrounds are completely different and the whole visual concept is as different to the original as it was possible to make it. The reason for this, I think, is quite obvious. What is the point of repeating X-number of years later something that was so beautifully made originally? We all loved the original "WIZARD OF OZ", but equally well, we were determined to try and come up with a completely fresh, modern, new approach.

QUESTION: You have been quoted as saying that this picture involved three "firsts" for you personally. Could you explain that?

Production and Costume Designer Tony Walton, 29-year-old Producer Rob Cohen and Director of Photography Oswald "Ossie" Morris, BSC, study a model of the vast Sweatshop set to be constructed inside the largest sound stage of the Astoria Studios for filming of "THE WIZ". The Universal/Motown production, requiring 13 weeks to shoot, is the most costly feature ever produced entirely in New York.

MORRIS: Yes. That statement is absolutely correct. It was the first picture for me working with a strange crew. On all of the pictures that I have photographed to date, I have always had my own people around me, but on this occasion, by prior agreement and a promise I gave, I went on my own and had to start from scratch with fresh people. Secondly, it was a first because I had never worked in New York before and, thirdly, it was a first because the picture was enormous in scope, and I had no studio support in any shape or form. In other words, we were using a four-walled complex in New York, a beautiful studio, but everything had to be found outside, either by purchase or by rental, and that was an enormous problem and headache for all of the wonderful people that I had working with me.

QUESTION: It must have indeed been unnerving to have to cope with all those "firsts", but were you able to get the support you needed in order to sort things out?

MORRIS: To be sure. I would like to say at this stage that, although I felt a stranger when I arrived in Manhattan, the crew that was assembled to assist me were of the very highest order and I have nothing but praise for all they did, both to make me feel comfortable and to assist me in getting this enormous problem off the ground. No comment that I might make about the filming of the "THE WIZ" would ever be complete without mentioning the names of Jimmy Contner, my camera operator, and Hank and Gary Muller, my first and second assistant cameramen. They were quite superb and I owe them a great debt of gratitude. As to Norman Leigh, my gaffer, I cannot praise his contribution too highly. He had the enormous job of trying to find the mountain of equipment that was required for the making of this movie. Where he found it I shall never know, but every praise is due his untiring efforts. Kenny Goss, my grip, must also be mentioned. He had almost as big a problem as Norman and once again, he came up with all the necessary and complicated grip equipment that was required throughout the entire time we were shooting. All praise indeed, to these wonderful people.

QUESTION: Ossie, how did you be-

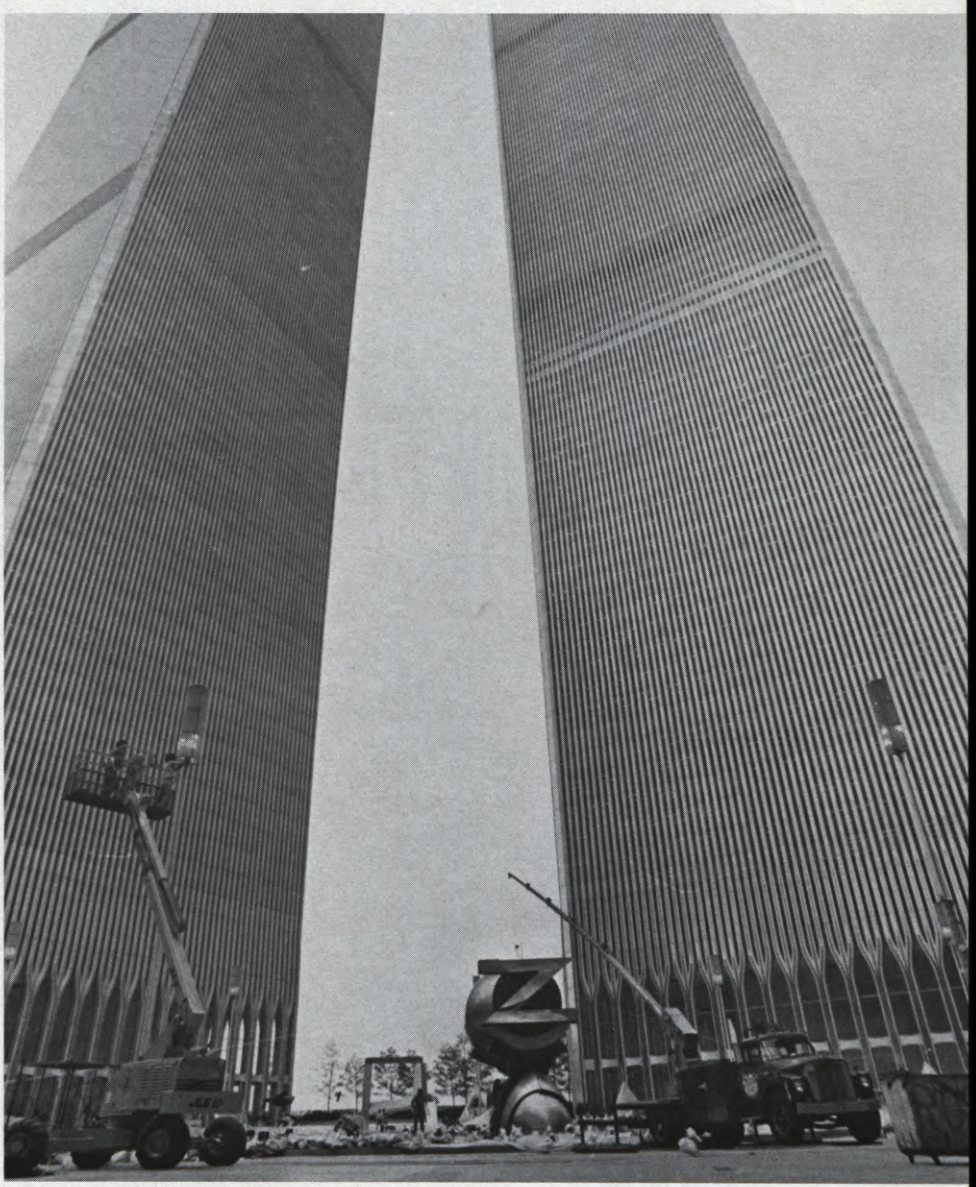
come involved with a picture in New York such as this?

MORRIS: I had previously made two pictures with Sidney Lumet, "EQUUS" and "THE HILL", and, out of the blue, while I was sitting at home one Spring morning last year, the telephone rang and Sidney offered me the opportunity to come to New York to photograph the movie. Understandably, there were certain restrictions, which I fully accepted, but I couldn't wait to say "yes" and get on an airplane and fly to meet him. At that stage, I had received no script and had little or no idea of what the story was about except that it was going to be a remake of "THE WIZARD OF OZ". Shortly after my arrival in New York, Sidney took me on a typical Lumet whirlwind tour of some of the locations. In many instances, he had selected alternatives, but in some cases he had fallen in love so much with a particular location that he hoped that it would be possible for us to shoot there, no matter how great the problems were. For instance, Sidney, very much, wanted to photograph a sequence at the World Trade Center in Manhattan. It is an enormous place and he knew that there were going to be great visual problems. However, he desperately hoped that somehow or other I would be able to say "yes" to this particular location and after 48 hours of intense thinking, and because of his enthusiasm for the location, I agreed that it would be possible to shoot there. But, as of that time, I had no idea how on earth I was going to make it all work. However, I was given the script to read and returned to London knowing that whatever happened, "THE WIZ" was going to be probably the biggest challenge of my life.

QUESTION: And did it seem any less challenging once you'd had an opportunity to mull it over?

MORRIS: Not actually. When I returned to New York to start the detailed work, I realized more than ever just what I was up against as far as the vast scale of the setting was concerned. It was but enormous. My biggest headache was the World Trade Center night location. Having agreed with Sidney that this was to be our Emerald City, I then had to start thinking about how I was going to tackle an area such as this without having lights looking into the picture from every corner of the location. I finally came up with the idea of illuminating the whole of the center of the setting by means of a Perspex floor illuminated from underneath. It seemed to me to be the right way to give the sequence, the mood that

(ABOVE) Cinematographer Morris and Director Sidney Lumet had worked together previously on "THE HILL" and "EQUUS". (BELOW) Cranes place equipment and giant props in the 12-acre Plaza of New York's World Trade Center, established as the Emerald City. The four nights of shooting here involved 650 performers and 385 crew members. The 110-floor twin towers had previously been scaled in the movies by "KING KONG".



was required, and at the same time it really was the only practical way to light such a vast area.

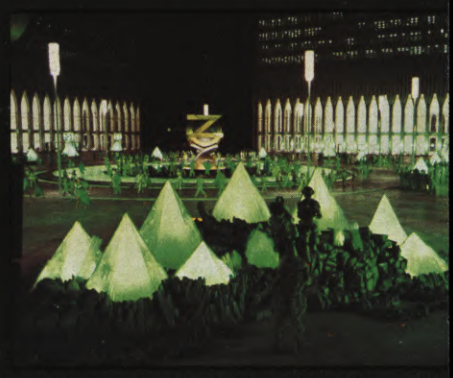
QUESTION: Having reached that conclusion, did you then feel that your major problem had been solved?

MORRIS: Well, I did for a brief interval, until something else came up. Having sorted myself out, as far as the basic concept was concerned, Sidney then came up with the idea of color changes during the musical numbers. He felt the sequence should start as a green sequence, then change to a red sequence and finish as a gold sequence—all this being an important story point in the script. This, of course, trebled my problems because it meant that besides having an illuminated floor, that floor had to change color three times. However, we were determined to make it work and after carrying out tests on small sections of the studio we evolved a scheme which entailed the fixing of 27,000 lightbulbs underneath this floor, 9,000 of each of the three colors, complete with special ventilation systems because the heat was obviously going to be quite tremendous.

We carried out tests in the studio to determine the brightness of these lamps because it was quite obvious that the green and red would have to be brighter than the gold and we ended up with 150-watt red and green lamps and 75-watt gold lamps, all of which had to be specially dipped to achieve the particular color that was asked for by the art department. These were placed under the Perspex floor against a backing of aluminum foil and the whole floor was sealed in a watertight manner because if the rain had seeped through it would certainly have been an electrical disaster.

Continued on Page 1098

(LEFT) Two Panavision cameras are set up to shoot a scene. Both are equipped with LIGHTFLEX units in front. This system was designed by Gerry Turpin to overlay a color tone in the shadow areas of a scene, without affecting highlights or flesh tones. (RIGHT) Under the Cyclone rollercoaster at Coney Island, the key sequence is shot in which Dorothy and the Scarecrow discover the Tin Man, a carnival automaton discarded in a rubbish heap.



(ABOVE) Emerald City is populated by fashion-conscious citizens who change color (along with the set) from green to red to gold at the snap of a magic finger. Each of the 650 dancers and top models had to be provided with identical costumes and furs in the three colors. (BELOW) The former New York State Pavilion of the World's Fair grounds in Flushing Meadow was transformed into Graffiti City. Some 750 feet of walls in the circular arena were painted in the luminous spray-paint colors that adorn the city's subway cars and vacant walls.

(LEFT) Morris (standing above camera) supervises lighting inside the Sweatshop set. (RIGHT) The first and last scenes of "THE WIZ", involving the street and apartment where Dorothy lives with Aunt Em, were shot in Brooklyn's Bedford-Stuyvesant urban renewal district. (BELOW) Dozens of silk-skirted skypan lamps overhang "exterior" set representing the rubbish heap where the Scarecrow is encountered trying to protect his pitiful corn patch from voracious crows.

(LEFT) Tons of rubbish were brought in to dress the set where the Scarecrow is discovered. (CENTER) The film's four colorful protagonists dance their way out of a stylized subway exit. (RIGHT) Giant letters spell out the word "OZ" at the center of the Emerald City. (BELOW LEFT) A strategy meeting is held in Dorothy's room at the Emerald City Motel, the exterior of which was a matte-painted modification of another of the former World's Fair pavilions. (RIGHT) Setting up for a blue-screen composite shot.

OF MUNCHKINS, WINKIES AND THE EMERALD CITY

The most imaginative set and costume design to grace the screen in many years combines the far-out elements of a fantasyland with the down-to-earth realism of modern-day New York City

By TONY WALTON
Production and Costume Designer

(EDITOR'S NOTE: The following article has been extrapolated from discussions with Mr. Walton conducted by AMERICAN CINEMATOGRAPHER Editor Herb A. Lightman.)

My assignment as Production Designer on "THE WIZ" originally came about through the fact that I had worked quite a bit with Sidney Lumet in the past. We had just recently completed work on "EQUUS" and he was mulling a number of possible assignments. When he mentioned that he was interested in doing the film version of "THE WIZ", although I had enjoyed all of the source material enormously, I told him that I thought that project came rather low on his list of terrific ideas.

He said, "Well, wait till I tell you what my notion for it is." Then he described his whole concept for an urban version of the stage musical translated to film and I became very infected by it. He had a kind of image of his mother-in-law, Lena Horne, as the Good Witch Glinda, singing *"Believe in Yourself"* to his children (her grandchildren), and he was also interested in making the film a kind of "valentine" to New York—which was appealing to me, since, after spending almost 20 years there, I'm also obsessed with New York as a city.

Both of these reasons lent a real emotional touch to the project, but I felt so many terrors about the hurdle of going up against the MGM classic ("THE WIZARD OF OZ") and also the difficulties of doing fantasy on film at the best of times, and especially today with budgetary conditions what they are, that I was very hesitant indeed. We had many long chats before deciding to plunge into it.

Sidney's initial instincts were to start with the music that existed from the Broadway show—with certain changes and additions—and use that as the moving force, but also to go back as closely as possible to the principles of the original L. Frank Baum book. He did not want to use any of the various schemes and devices that had cropped up in the several previous dramatic and film versions of "THE WIZARD OF OZ".

We viewed all of the earlier film versions, including those which had been made by Baum himself and by his son, and they included some rather strange departures from the original text. But Sidney felt that he shouldn't use any of those things that were later additions to the original and he was also very keen on going back to the essential message of the book, which is "Believe in yourself," as opposed to "There's no place like home."

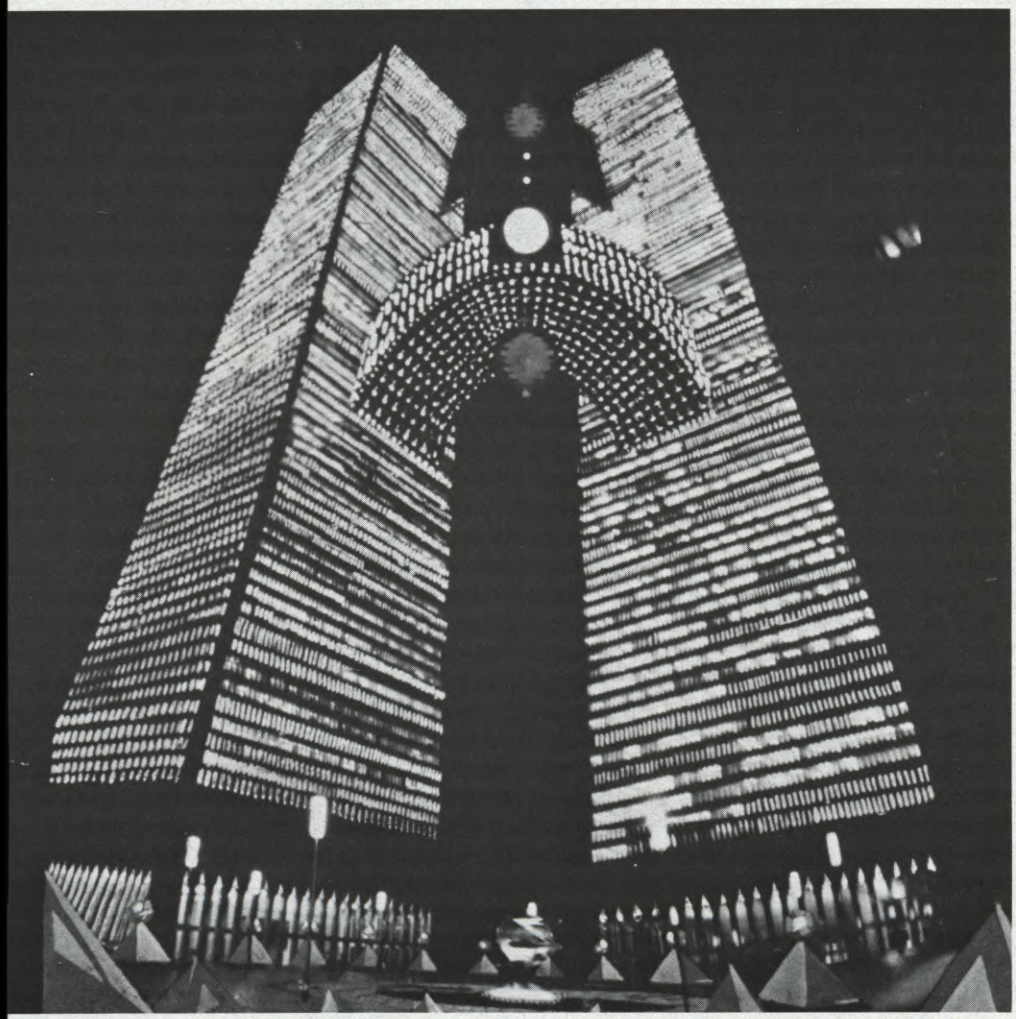
On the visual end, the idea of doing a fantasy within the confines of New York was both exciting and terrifying, because many of Sidney's strengths as a director come from a kind of gritty realism. He wanted to maintain some connection with that, not only to feel a little bit at home, but also to use those strengths to best advantage. The result was that within the fantasy aspects of the film, we tried to organize everything so that there was always a texture of reality, no matter how far into fantasy we went.

For example, in filming a street sequence at Eighth Avenue and 46th Street—which is the "Poppy" sequence of the film, representing Hooker Heaven—we were able to go to extraordinary lengths in dressing it up, because the reality of the place was so insistent that there was almost nothing you could do to remove that quality of realism. Conversely, the Munchkinland sequence (which takes place in a children's graffiti playground) was shot in the old New York Pavilion of the World's Fair in Flushing Meadows, and the structure was already so strange and fantastic that there was little one had to do to bring it into the realm of fantasy.

When we were building studio sets that stemmed from fairly imaginative notions, we went to some lengths to try to put in a lot of grit and real junk, and also make the finish and texture as persuasive as possible, so that there would always be a little connection with reality, no matter how far out we were going.

In our design concept, we tried to

A sketch of New York's famed World Trade Center (which represents the Emerald City in the Universal-Motown production of "THE WIZ") shows the twin towers linked by a curved element which was later added by means of a matte painting.



adhere to the original colorings that Baum had indicated in his book. With the single exception of the Winkies sequence that takes place in the Wicked Witch Evilline's territory—which, in our version, is a sweatshop. In the Baum original that episode is indicated in yellow, but we felt that the audience would have had such a dose of the Yellow Brick Road by then that they would be looking for a little bit more of a dramatic change. As a result, the sequence is designed in all kinds of reds and purples and Haitian colors, but when the Wicked Witch melts and dies, a kind of golden yellow color is introduced, so there is a tiny connection with the original even in that case.

One of the things that was valuable about seeing the original Baum silent film version of the story was that, while he filmed his very imaginative characters in all kinds of fantastic costuming, he placed them in natural settings. Something was not quite working, and it was hard to figure out what it was, but I remembered that the same was true of "THE BLUEBIRD", the American-Russian co-production that was done a few years ago. It became obvious that there is a sort of problem to believing in an actor dressed in an animal suit moving through real trees and grass in a natural organic environment. Learning from this, we tried hard to set all our fantasy sequences within, as it were, "invented" worlds, even if they had been previously invented by city planners and then added to and adjusted by us. With the exception of the sky, there is nothing really organic in any of the fantasy sequences. They are all man-made or invented.

One of the things which helped enormously to add an aura of fantasy to the basically realistic settings was the system known as LIGHTFLEX (which, I believe, was originally devised to add sparkle to the center of a glass of Port in TV commercials). Ossie Morris, the Director of Photography, went to considerable lengths to come up with a scheme for using this system to tint each of the sequences. It was developed to be used at a range of 300 yards or more, enabling us to "wash" each sequence with the core color for that sequence.

I made an enormous color breakdown board showing the essential coloring of each sequence and we chose gels together. We were all very conscious that if you laid down a chunk of Yellow Brick Road in the middle of the city, it was just going to look like that, unless something was added to kind of reflect that color into the surroundings. In "THE WIZ" this has been very subtly achieved, but to my mind, it makes an enormous difference. It is very, very helpful.

In seeking a visual style for the film, we looked quite a lot at the work of black painters, particularly Romare Bearden, a contemporary artist who works a lot in collage, combining photographic elements with some high-key colored papers. Although there is really nothing that you could point to in the film and see as relating to his work, it was enormously helpful as a kind of motive force and a means of combining brightly colored fantasies with realistic textures.

We also looked at the work of some slightly more primitive black painters—Horace Pippin, Jacob Lawrence and other New York artists—and there were things that erupted from their work. Some of the rooftop stuff, I think, probably stems from Ben Shahn's work. Our fantasized Yellow Cabs were probably triggered by Steinberg's early Yellow Cabs.

Our Tin Man concept came from a painter/designer (actually European 1920ish) named Alexandra Exter, who shortly before we started work on the film, had a wonderful exhibit of some of the large marionette figures she made in the '20s and '30s from tin cans and found objects. The memory of seeing those things was very helpful in arriving at what the Tin Man should look like, but the final design was the result of an early location excursion which Sidney and I made when he was just taking me to some of his most beloved parts of the city. At one point we went to Coney Island in the early spring, when they were first uncovering all the rides and mechanical sideshows and so on. These things were going through various stages of repair and repainting and many of them were in bits and pieces.

There was a shooting gallery run by a man whom Sidney had known since childhood, and in that shooting gallery was a mechanical piano player, an automaton, that got triggered into action when a certain target was hit. Although Sidney had originally visualized the Tin Man as being found in an automobile graveyard, this gave us the idea of having him be a Coney Island carnival automaton who has seen better years. He's in rather derelict shape, having been crushed under the body of his fourth wife, a mechanical laughing fat lady. He's obviously been pieced together many times throughout the years with tin cans. So between the marriage of that notion with the Alexandra Exter tin can marionettes, he sort of emerged. He also has loose connections with a type of early Black vaudeville minstrelsy, but these qualities are not too heavily overlaid in his makeup.

The scarecrow went through all kinds of changes before he was "cast", while we were trying to think of what an urban scarecrow might be. He ends up being a conglomeration of plastic trash bags. His hair is a dishmop and his hat is a little popcorn barrel upside down. He's made up of urban garbage and filled with shredded paper. When he's stuck for a sentence from time to time, he pulls shredded quotes from his garbage bag.

Tony Walton, much honored for his stage, screen and television design, is perhaps the last of a vanished breed of designers who create both settings and costumes simultaneously.

The Lion is one of the lions outside the New York Public Library. He has a more sophisticated, slightly European quality. A kind of check pattern was shaved into the fur of his jacket and there is a jodhpur shape to the lower part of his costume.

In the films that I've worked on with Sidney Lumet in the past, I've always done both Production Design and Costume Design, but this time there was a contractual problem—we had to start shooting by September 3—and the preproduction period was very, very tight. The undertaking was so mammoth and the time so short that I really didn't think I should take on the whole load, so initially I wasn't going to do the costumes. But after a certain period, Sidney asked if I would do them and I said I would have a crack, provided that I could involve the Seventh Avenue fashion designers for the huge Emerald City sequence, which would take an enormous load off my shoulders.

Continued on Page 1110

Poppy
love
Perfume
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Tony Walton,
Production Designer

"It added magic to the fantasy"

One of the major requirements for Tony Walton, Production and Costume Designer of "The Wiz" was, in his own words: "To blend fantasy with reality."

He used a wide variety of Rosco materials to create effects in the film, including an enormous Rosco Rearscreen. "We painted the image on the screen," said Tony, "trimmed it with neon and lit it brightly from behind to give us the effect of a huge photo transparency. This gave us the maximum intensity of light, with a fantastic translucent look."

But this was only one of the Rosco materials used on "The Wiz". For a film that used colored light in dozens of scenes, Rosco supplied Roscolux, Roscolene, diffusion materials and reflective materials.

Tony Walton and his design team also used a number of Rosco-Haussmann materials and paints on both the sets and the costumes. In Tony's words, "these scenic materials added immeasurable magic to the fantasy."

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Scene from the new film "The Wiz".
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MAGICAL MATTE PAINTINGS FOR "THE WIZ"

A wizard at the art of make-believe blends fantasy and reality in dazzling images that give the motion picture audience a chance "to escape the real world and dream things that could never be."

By BOB FISHER

From the mid-1960s through the early 1970s, the trend in moviemaking was toward reality rather than fantasy. The demand for Albert Whitlock's skills was hardly in decline during that period. Producers in those days called on him for *illusions* of reality on a spectacular scale. In fact, Whitlock earned Academy Awards for Special Visual Effects for "EARTHQUAKE" and "THE HINDENBURG."

In contrast, for "THE WIZ", Whitlock was mainly concerned with creating illusions of the impossible. Creating fantasy is the other side of film effects, presenting a totally different sort of challenge.

"People seem to want to see fantasy today," Whitlock says. "It gives them an opportunity to escape the real world and dream things that could never be." That isn't a bad description of "THE WIZ", and Whitlock's magic was important in bringing that fantasy to life.

He helped run the Yellow Brick Road down the center of the Brooklyn Bridge, and transformed New York into The Emerald City, where the Wizard of Oz lives in the world Trade Center. For the latter, Whitlock created a curving structure which joins the two quarter-mile-high towers about mid-way up their sides. Of course, it is Whitlock's work that brings Dorothy to Oz in the first place, as she disappears into the vortex of a violent snowstorm and flies out the other end, into an imaginary world that is a strange reflection of the real one.

There are likely to be many comparisons of the original "WIZARD OF OZ" film to the modern-day version, including the special visual effects. Once Dorothy lands in Oz in the original film, there are few references to reality; the break is almost absolute. "But in 'THE WIZ', Whitlock notes, "we blend the fantasy and the real worlds. There are no sharp delineations. Reality and fantasy co-exist across a subtle line." Because of this basic difference in the two films, the approach to the effects had to differ also.

An example: It is just at dawn when Dorothy, the Tin Man, Lion and Scarecrow reach the river bank, where they see the Wizard's Emerald City across the water. As the sun rises, it slowly changes from a brilliant disc into an enormously Big Apple, symbolizing the modern-day setting for the Land of Oz. Without Whitlock's subtle transition, the sight of an apple rising over a modern city could have been ridiculous rather than surreal.

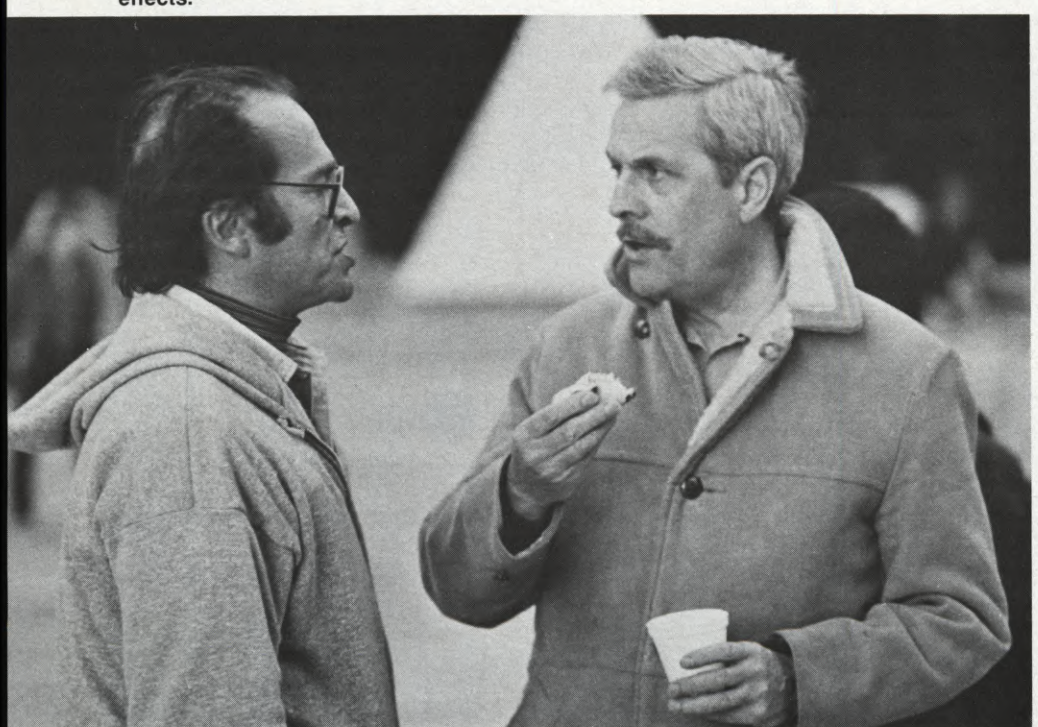
The methods Whitlock used to bring this transition about (in a single shot!) run the gamut of photographic effects technique. The shot begins with a stylized night view of the city, which the audience has seen earlier in the film. The scene at this point is entirely painted, but the painting is carefully matched to the location film of the real day skyline that will appear later. As the night painting is faded slowly out, a dawn sky is faded in, leaving the city mostly in silhouette. Finally, the dawn sky and silhouetted buildings dissolve to the real New York skyline, with a few painted additions. During the dissolves, the Big Apple rises and revolves via travelling matte, itself dissolving slowly from a sunlike glow on the horizon to a realistic (!) apple hanging in the sky. Various other incidental film and painted elements were also required to eliminate an awkward foreground, provide water reflections, make the building lights sparkle, and so on. The final composite required thirty-four passes through the matte-shot camera and another six through the optical printer. Each take required an entire working day.

The audience reaction to the shot is usually a gasp of surprise, followed by a murmur of appreciative amusement. New Yorkers applaud.

To plan and execute a shot like this, Whitlock draws on a storehouse of knowledge acquired during a career that began in England in 1929. His uncle got him a job handing out nails and screws at a studio carpentry shop. Five years later, and still in his teens, he was painting signs, and later, scenic backgrounds. With the increasing turmoil in Europe, technicians from Germany, Poland and other nations flooded into the English film industry, where some of them contributed to Whitlock's film-making education. He was tapped for all manner of errands, including trips to Jermyn Street in London for costumes. "My early life couldn't have been more exciting or interesting," he recalls.

The various artistic and mechanical skills he learned provided a solid foundation for Whitlock's transition to the field in which he would later become preeminent: matte painting. "It was a picture about Lord Byron, and the matte artist left," he remembers. "They asked if I

On the Emerald City set in New York's World Trade Center, director Sidney Lumet discusses a scene with special effects expert Albert Whitlock, who appears to be having a quick lunch on the run. He made a total of eight trips to New York during production of "THE WIZ"—two for location scouting and six for actual shooting—and returned to his Hollywood workshop at Universal City Studios in between to supervise execution of the effects.



could take over. I was 19. It was as simple as that."

Whitlock came to the United States in 1954, applied first for a job at Disney Studios, and then every other place he could think of. There were no takers, so he took a job painting billboards. He was on the verge of returning to England when a telegram came from Disney asking if he was interested in painting titles for "20,000 LEAGUES UNDER THE SEA". That initiated a seven-year relationship, ending in 1961 when Whitlock came to Universal, where he now heads one of the few studio matte departments.

Whitlock refers often to the special-effects team he has organized at Universal. It includes First Cameraman Bill Taylor, Assistant Matte Artist Syd Dutton, Camera Operator Dennis Glouner, Assistant Cameraman Mike Moramarco, Camera Loader Mark Whitlock, Rotoscope artist Susan Rodgers, and Key Grip Larry Shuler and his assistant Henry Schoessler.

The entire team was mobilized to help Producer Rob Cohen and Director Sidney Lumet with the illusions for "THE WIZ". Whitlock made eight trips to New York, where the film was shot on the streets of the city and at historic Astoria Studios. The first two visits were scouting missions, while the others involved the actual shooting of film for the special effects composites, and constant consulting.

"The director may inhibit the special-effects person by asking what he or she can do," Whitlock says. "I'd rather they tell me what they want, describe their vision, so to speak. That gives the special effects team an opportunity to be creative, to prod and suggest how their own ideas might contribute to creating the illusion as well as solving problems."

Another important ingredient is for the persons handling visual effects to have a thorough understanding of the style of the film. "The idea of blending the fantasy and real worlds didn't just happen. (Our work realizes) a concept that came from my understanding of Sidney's vision. I listened. He listened. He told me what he wanted. I did my best to carry out my role in creating his vision.

"We also made some mistakes," Whitlock admits. For example, he helped choose the Flushing Meadow location where an old-style glass shot was to add a new skyline of five Chrysler Buildings and a rollercoaster. "We picked the location in September," he recalls. "Principal photography was done in November. By then, the sunlight was coming from a different direction. The real bridge and road were in backlight and, of course, no direct light fell on the camera side of the painting. It would have required arc lights on the painting to bring it up to key. Even if that had been possible, it certainly wasn't practical."

Whitlock at work on one of the matte paintings for "EARTHQUAKE", for which he won an Academy "Oscar". He garnered a second statuette for "THE HINDENBURG". Though much honored as quite possibly the world's foremost matte painting artist, his work on "THE WIZ" involved practically every known special effects technique.

Whitlock's suggested solution was to shoot on a slightly overcast day, when there would be less direct sunlight. Even so, he had to substantially boost the lighting on the painting with seven 300-watt 3200°K lamps with blue filters.

The improved Eastman 5247 color negative has been helpful to Whitlock's work, especially in matte painting shots, because of its increased tonal scale as well as its definition. "When the new negative became available, we initially used it as both an original film and duping film, but only on shots to be duped. Because of the better grain and sharpness, we got perfect matches with principal photography on 5254 original negative, even though our film was a generation away."

Now that the new negative is universally used for principal photography as well, the ante has been upped. "We have to be more fussy in our details, simply because the definition is so good. Because of the diffusion used in the principal photography of 'THE WIZ', we had to be careful, particularly in our original-negative matte shots and miniature work, not to produce a too-sharp negative. That would have created a jarring effect."

For the scenes where Dorothy and her companions dance across the Brooklyn Bridge on the Yellow Brick Road, Whitlock convinced Lumet to forego the use of diffusion. "One shot involved the blue screen process to superimpose the four characters and the road over the real bridge and a painted sky. The actors start very small in the frame. There was also a very important high shot where Dorothy and the others are mere specks at the far end of the bridge. If there had been any problem at all, I felt we would lose too much definition in the dupe for the scenes to be believable. The film stock is the eighth wonder of the world, and I knew it would hold in the dupe if we didn't degrade the original."

Even the best film is only as good as the processing. "We're probably a nuisance to the lab," Whitlock says. "We often need test film processed in five-foot lengths. We also send through innumerable short rolls of four different black-and-white stocks, developed at many different speeds. It all must be spotlessly clean. I think Technicolor was very sensitive to our problems."

Whitlock will go to great lengths to keep an effect on the original negative and so put the maximum possible quality on the screen. Perhaps the most difficult original-negative shot in "THE WIZ" is not, strictly speaking, a matte shot at all. The challenge was to do an extreme tilt, up the entire length of the World Trade Center towers, finally revealing a non-existing structure joining the two buildings high above the ground. The tilt was first made on location, filming a spectacular scene involving 500 dancers. The selected take was developed and printed. Back at the studio, Whitlock had built two plain wooden columns, exactly matching the proportions of the towers in

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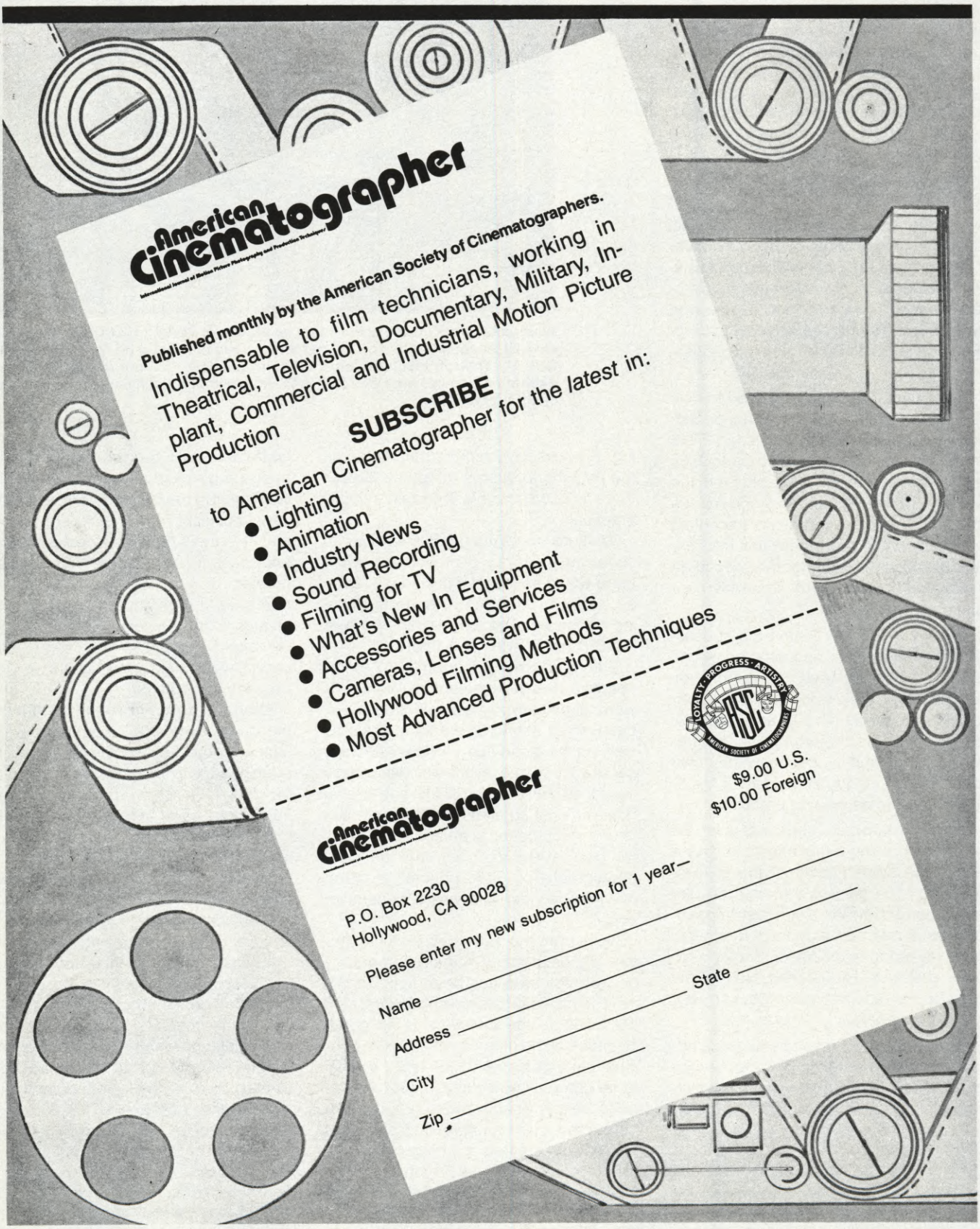
American Cinematographer

International Journal of Motion Picture Photography and Production Techniques



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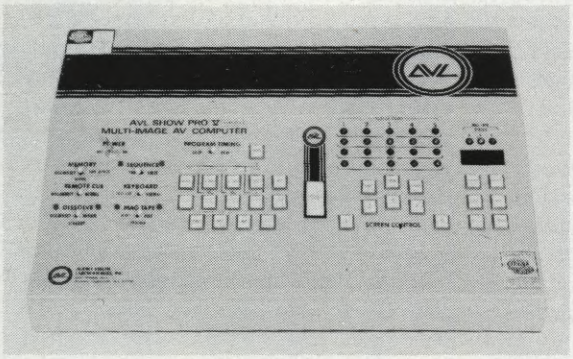

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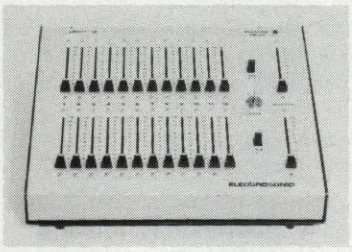

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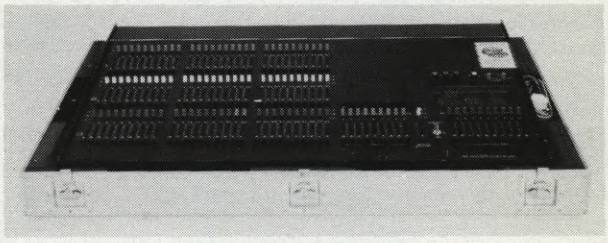

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THE ACOUSONIC RECORDING PROCESS MAKES ITS DEBUT

By BRUCE F. SWEDIEN

Developed to record the sound track and album of "THE WIZ", this 24-track, time-base-code system enhances the realism of true stereo

The Accusonic Recording Process was developed by myself for Quincy Jones to be used in our recording of phonograph records and motion picture sound tracks.

Basically the system uses either maglink time code or SMPTE time-code to synchronize multiple 24-track master tape recorders together, thereby greatly increasing the number of tracks available to us for the initial recording.

Initially my intention was to free Quincy from the concern of not having enough tracks in the initial multi-track recording to accomplish his rich, intricate musical ideas. As a bonus I soon discovered that the system allowed me to record much more real stereophonic information by using pairs of tracks instead of the standard single tracks so common in recording today.

Many attempts have been made recently to achieve a more "stereo" sounding recording, but these have been add-on gimmicks and really give no additional stereophonic dimensions to the recordings. They do, in fact, add distortion and other problems.

The A.R.P. adds no distortion or noise and, in fact, adds nothing but real stereo and its natural acoustical environment to the recording.

"THE WIZ" MUSIC TRACK RECORDING AND REPRODUCTION

The basic concept of recording the music for "THE WIZ" began with the decision to reproduce the music with as wide a frequency range and as great a dynamic range as is technically possible today. To achieve this we decided to use the Dolby stereophonic motion picture sound system. This high-quality method of reproducing motion picture sound is becoming very popular in theaters of all sizes.

Basically, the Dolby stereophonic motion picture sound system consists of an optical sound track with two channels of sound, into which four channels are matrixed. Included in this system is the Dolby Type "A" noise reduction encoding and decoding.

The ultimate technical quality of any motion picture sound track is only as good as the elements that go into it. At the pre-production meetings, we decided that in order to take full advantage of the wide dynamic range in stereophonic sound images available to us with the Dolby system that it would be necessary to use Dolby noise reduction in all phases of recording and reproducing the sound for "THE WIZ". The result is most satisfying.

In recording the music tracks for "THE WIZ", I have taken great care to preserve stereophonic sound images in the music wherever the opportunities present themselves. In all cases, this stereophonic recording is carried through to the final sound track.

The music tracks for "THE WIZ" were recorded on 24-track, 2-inch tape at a tape speed of 30 ips. I used a reference level of +3. (250 n/w). Dolby noise reduction is used throughout. All the selections were recorded on Ampex 456 type tape. I ordered all the tape for the recording work from one production run. This, of course, required ordering enough tape at one time to do the entire project, the uniformity of quality was well worth the extra trouble. In some cases many more tracks of music recording were required than the standard 24. To accomplish this I used multiple 24-track tape machines synchronized with either SMPTE or Mag-Link time code. In all cases a 60 hz sync signal was recorded in order to later synchronize tape machines with sprocketed film elements.

The pre-production recording sessions were recorded almost exactly like a phonograph record recording session, using standard 24-track studio techniques, plus the Accusonic sound recording process. In addition I used the following unusual techniques to accommodate motion picture synchronization:

1. Recorded 60 hz sync signal on the master 24-track simultaneously with pre-production recording.
2. Recorded the click track that was fed to the musicians during pre-production recording on 24-track master.
3. Recorded a voice bar count on the 24-track master.

The general technical recording concept for "THE WIZ" music is very much modern phonograph record oriented. I felt that it was necessary to provide as up-to-date and pop sound a recording technique as possible. The public is very much music and sound aware, of course, especially young people. If the sound track for "THE WIZ" did not have all the tricks of the trade, I felt it would fall short of the mark.

After recording the rhythm tracks for the pre-production work, we added the lead vocals for the solo numbers. In the recording of these lead vocals I used microphones that I have collected personally over the years. In all cases these mikes I selected for their compatability with the vocal timbre of the artist. As an example, in recording Diana Ross's solo vocals I used my Telefunken 251 condenser microphone. I purchased this mike new in 1960 and it has led a pampered life ever since. This mike has a very mellow color, but a great deal of clarity. It worked very nicely for Miss

Famed composer/conductor Quincy Jones, who adapted, supervised and produced the motion picture sound track of "THE WIZ", had previously worked with Director Sidney Lumet on several films, including "THE PAWNBROKER", "THE ANDERSON TAPES" and "LAST OF THE MOBILE HOT-SHOTS". The Acousonic Process, developed for him, for the first time offers the listener true audio stereo images in the exact perspective as they occur during performance.

Ross. For Richard Pryor and Nipsey Russell I used my Neumann U47 condenser mike. This microphone I purchased new in 1952. For Michael Jackson my Shure SM7 dynamic mike sounded best and on Ted Ross and Mable King my Neumann U87 proved to be the best choice.

As the pre-production recordings were finished I made mixes of each song on ¼-inch stereo tape. These mixes were for evaluation by director Sidney Lumet and musical director Quincy Jones. We went into actual production of the film in October of 1977. An important phase of producing a musical motion picture is the playback of the pre-recorded music tracks during the shooting of the film. "THE WIZ" presented some terrifying problems in this area, the dance number *"Emerald City",* for instance, has 120 dancers, 250 extras, plus an assortment of models, singers, animals etc. It was filmed out of doors at the World Trade Center in Manhattan. It takes place in the plaza between the two buildings. I had to play back the music track for the performers in an area the size of four football fields, with little or no time delay between the loudspeakers and the dancers at a volume level sufficient to over-come the New York traffic ambient noise.

Not a small factor I had to consider were the high winds frequently present at the World Trade Center. In this number the dancers perform on a lighted circular stage in the center of the plaza. The diameter of the stage was approximately 140 feet. If the dancers were to hear the music track a trifle late, they would appear to be out of sync on film. Working in these dimensions and achieving close-in play-back with nothing visible to the camera involved a great deal of preparation.

At this point I brought my friend Aaron Baron of Woodstock, New York, into the project. Aaron has a great deal of experience in location sound, not only recording, but PA systems, and motion picture and television playback as well. Aaron and I agreed that for a project like this we would need to design and equip a sound truck from the ground up. With the truck that Aaron owns as a basis I designed a system that Aaron assembled and installed in the truck.

The truck is a GMC 7500 series with a frame stretched to accommodate a 24-foot aluminum box. This is as large a body as can be used on a two-axle truck. Our reason for staying with a two-axle truck is that this eliminates a lot of road permits and complications that you find with multi-axle vans. This allowed us easy mobility in the New York area. The inside dimensions are approximately 24 feet long by 8 feet high by 7 feet 8 inches in width. The truck is heated and air-conditioned.

Some of the 300 musicians who were utilized throughout the recording of "THE WIZ" score. The music tracks were recorded on 24-track, 2-inch tape at a speed of 24 ips. Dolby noise reduction was used throughout in all phases of recording and reproducing the sound. The sound track recording is currently in release as a double album by MCA Records.

The AC wiring in the truck is heavy-duty 220-volt, three-wire, single-phase, 100-amp service. The mixing console is a SpectraSonics, 20-input, 6-output console. The main playback machine is a 3M 16-track 2-inch Model M59. A 3M Selectake digital tape position indicator was added to this machine. Speed control is accomplished with a Magnatech 92C automatic resolver. When the truck sound system is running on generator power the 92C resolver is referenced to a Frezzolini crystal for sync reference. An audio rack cabinet is installed next to the console housing the resolver, a jack-field, parametric equalizer, UREI 964 digital click-track, UREI limiters and miscellaneous. An Ampex AG440 2-track tape machine was used as a backup unit in the event of failure of the 3M 16-track. The monitoring system consists of a Crown D150A driving JBL 4311 speakers. A black and white closed-circuit TV system is used for visual cueing from the set.

One of the biggest problems in producing a motion picture on a scale as large as "THE WIZ" is in conveying the director's directions to the performers, crew and cast in the large dance numbers; the basic old bullhorn just can't do the job. Wouldn't it be great if the director were free to move about with nothing heavy and cumbersome in his hand and no wires? What I did here was to adapt a Vega wireless microphone. What we finally came up with is an adaptation of the Schaeffer-Vega diversity system. We used a citizens band type microphone with a press-to-talk switch on it fed into the Schaeffer-Vega transmitter. The output of the Schaeffer-Vega receiver is then fed into the main mixing console. All Mr. Lumet had to do to talk to everyone on the set was to push the button and he had the entire PA system to amplify his voice.

The dance sequence, *"Emerald City",* filmed at the World Trade Center was the first location scheduled. The dancers danced on a lighted circular stage in the center of the plaza, the diameter of the stage is approximately 140 feet across. Here I concealed 20 Bose Model 800 speakers in a trough in the inside base of the circular stage. By keeping these speakers projecting upwards and as close to the stage surface as possible, no dancer was ever more than fifteen feet from a loudspeaker at any time. We also used twelve Altec-Lansing Model 290E multi-cells with Model 421 multiple woofers for side fill-in around the plaza. We built up two Westlake Audio wide-range monitor loudspeakers mounted vertically on specially built bases, each with four large industrial-type casters for easy moving. Each of these Westlake systems we bi-amped with a Crown DC300 amplifier. These speaker systems proved excellent for mobile high-fidelity playback in a variety of situations. We also used eight Altec-Lansing 604E's in medium-sized bass-reflex cabinets on casters in several of the applications.

The production tapes that were played back to the dancers and the vocalists in

Continued on Page 1096

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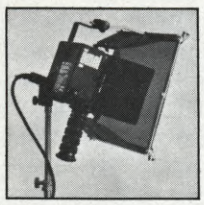

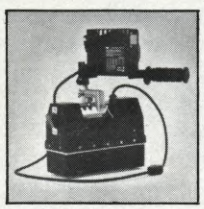

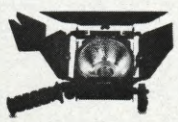

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LIGHTFLEX: A WHOLE NEW WORLD OF COLOR ON THE SCREEN

An ingenious method of adding color overlays to shadow areas of scenes without affecting highlights or flesh tones proves to be exactly right for lending fantasy to the harshly realistic elements of New York City

By GERRY TURPIN

(EDITOR'S NOTE: The following article has been extrapolated from discussions with the author conducted by David W. Samuelson, AMERICAN CINEMATOGRAPHER Contributing Editor.)

Ossie Morris came to me at Pinewood Studios in the early part of May, 1977 and said that he was going to be photographing the film version of "THE WIZ".

He was confronted with a most difficult problem, because he said that they wanted to change colors on some enormous areas that he had to light, such as the World Trade Center in New York, and that to change a lighting set-up from complete red to green to yellow during the course of one evening's work would be absolutely impossible, since it would necessitate a total re-light.

He remembered the effects that I had achieved in "YOUNG WINSTON", and he had also attended the lecture that I gave shortly afterwards to the B.S.C. regarding LIGHTFLEX (which, at that time, was called COLORFLEX) and he felt that the color overlays inherent in the system would give him a better means of making the required color transitions, as opposed to changing the light sources.

Because LIGHTFLEX doesn't affect faces or highlights (it will only affect whatever is below the key level), he felt that it would create a much nicer result. Rather than having everything go yellow, green, blue or whatever color they chose, it would mean that there would be an overall effect of color, while still retaining the pure quality that was necessary within the key light areas, or anything that he wished to highlight which was white.

First off, he asked me if I would shoot some test material with a black face, since the musical would have an entirely black cast. He asked me to give it a full key and leave it very contrasty, with a white background and areas of black that we could fill in. He asked that I keep the key on the artist totally normal and shoot at the sort of stop which he hoped to use during the whole picture, which would be something like f/3 to f/4. He also said that his exteriors, which would be shot in dull weather, should be capable of producing the same results within a range of about f/5.6 to f/6.3. Fortunately, it was to be a winter picture, so he knew that he would have that kind of control.

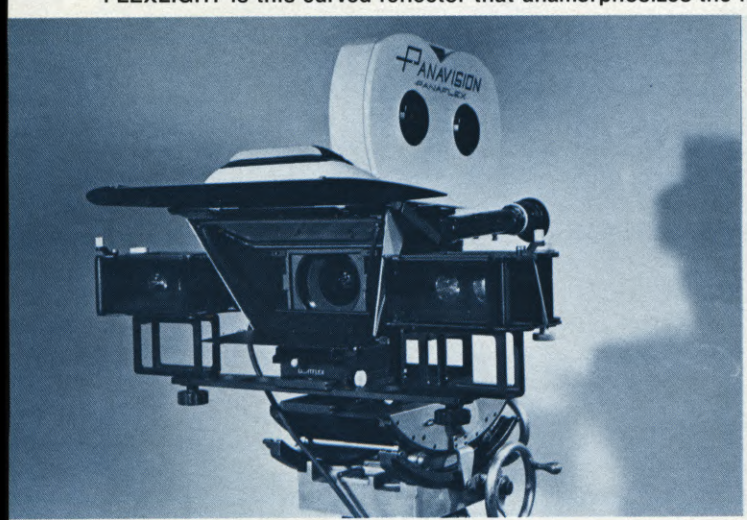
I set up a series of tests, going through the whole range from virtually nothing up to full power and proved that LIGHTFLEX had very little effect on the key hitting the faces of the black people (or the white areas in the scene) even at full power. Because there would be a Tin Man in "THE WIZ", I put up all types of metal—anything that produced highlights—and photographed it in red, green and yellow.

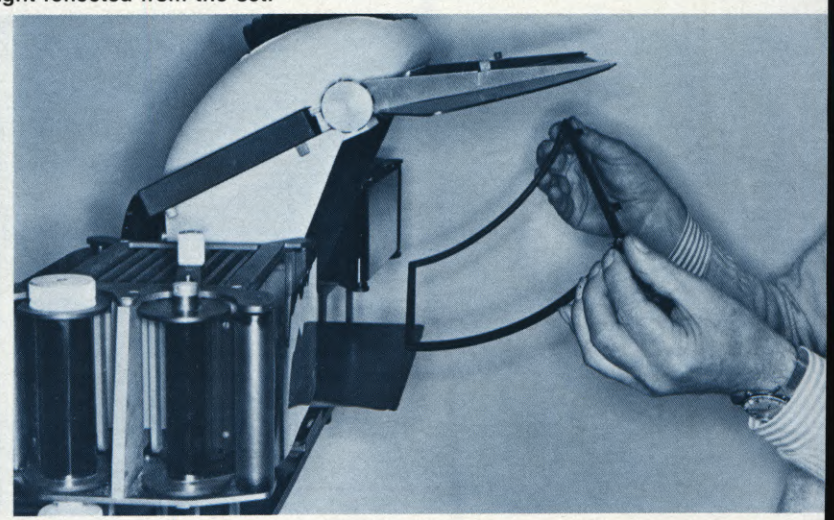
I sent these tests via Ossie on his second trip to the States, so that the producers of the film and the people at Universal Pictures could see them and decide if this was the effect that they wanted. A week later I got a phone call from the producer and Sidney Lumet telling me that they had goose-pimples and that this was exactly what they wanted. They were extremely excited about the whole thing.

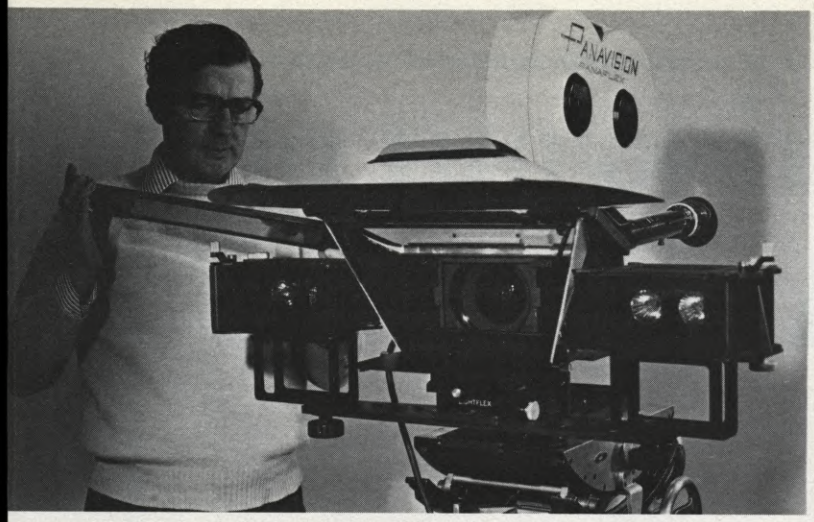
However, one thing that Sidney Lumet did state was that although one could achieve a color overlay to any density, he felt it was extremely important to let the audience visually enjoy color changes on the screen without going cut-to-cut from one color to another. This obviously presented a great problem to me, because I had spent many years reducing the equipment in size from the very large piece of apparatus we had produced for "YOUNG WINSTON". To this end, it had been through four or five different stages, with the final versions having a filter tray that would slide in and lock off, so that it was totally lightproof.

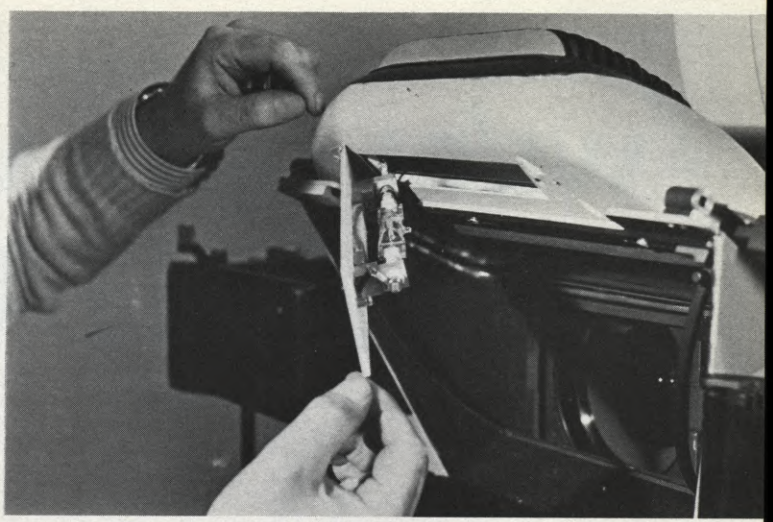
Now, in order to produce what Sidney wanted, which was color changes in mid-scene, Ossie felt that it would be an advantage if we could have an open-ended unit—which meant that the filter tray would slide completely through. The main question was one of how to attach the hood to something that was completely open at both ends, but we managed to overcome that problem for him. In fact, to effect the color changes, we succeeded in producing a filter tray that was just under five feet in length. It had three interlaced colors of red, yellow and green, plus a special attachment underneath to diffuse the color where it had been interlaced so that the demarcation was not too sharp. This meant that by pushing the filter tray very slowly through the unit, one could visualize the change.

(LEFT) LIGHTFLEX and FLEXLIGHT units mounted side-by-side on the front of a Panavision camera. The two systems are separate and distinct. LIGHTFLEX shines white or colored light back through the camera lens onto the film. FLEXLIGHT is an on-camera source that shines light toward a subject in the set covered with high-gain 3M reflective material. (RIGHT) The secret of the compactness of FLEXLIGHT is this curved reflector that anamorphosizes the light reflected from the set.









(LEFT) Gerry Turpin, the inventor of LIGHTFLEX and FLEXLIGHT, is shown here changing the filter pack on the LIGHTFLEX unit. (RIGHT) The easily replaceable light sources of the FLEXLIGHT unit, which consists of two pairs of lamps (one on either side of the lens) that can be angled to cover the field of even a 14mm lens. FLEXLIGHT was developed specifically to augment the LIGHTFLEX effect in filming the Graffiti City sequence of "THE WIZ".

It was almost like a misty dissolve from one color to another.

This development created great excitement throughout the whole unit, because it made possible the shooting of a very special number. It begins under the Brooklyn Bridge, where Diana Ross is singing a song. It is late afternoon and the color overlay has a warm sort of yellowy brown cast. Then, throughout the number, this turns into day-for-night and goes to blue. Next, the audience is gradually led into the feeling of the sun coming up—except that, instead of the sun, it's the "Big Apple" (courtesy of an optical effect)—and the color overlay changes to a cool early morning yellow tint. So, by virtually doing a continuous color change right the way through the number without a cut, one has a complete transition from late afternoon to night to early morning. The yellow color overlay at the end of the scene is important, because that's when the characters start on the Yellow Brick Road that leads across the bridge into Manhattan.

In the beginning it was thought that the LIGHTFLEX system would be used only for specialized scenes, but when they saw how exciting it was, that opinion changed. The whole film, after all, is a fantasy that takes place in New York, which is, shall we say, a "hard" city in visual terms. But they had to maintain an aura of fantasy at all times and by using these color overlays, in combination with fog and other creative filter combinations that Ossie had decided upon, it was found that they could literally tone every scene, so LIGHTFLEX, instead of being used only on individual sequences, was finally used on every shot throughout the film.

Over and above the color overlays, they wanted something even more special in order to gain certain results. I had been experimenting with 3M's "Scotchlight" reflective material to create an effect wherein one could change color on that material without encountering the obvious—namely, that when anyone walks toward the camera with any 3M material on them, the reflected light will get hotter. Conversely, when they move any appreciable distance from the camera, it will lose density.

At that time, I was working on a system (something like an on-camera front projection unit for shining light toward the subject) which would actually change color on the 3M material, but I had not yet solved the density problem. They asked me if I could throw the light 300 feet and beyond and color it—which I did achieve—and I suddenly found that by attaching specially made light units on either side of the LIGHTFLEX unit, and by angling those two light units (which had color filters on them, using rollers similar to those of an ordinary reflex camera), one could have a spool of color. Not only could one overlay color onto the scene with the LIGHTFLEX, but one could add the same or another color to whatever had the 3M material on it in the scene. In a dance number, for example, one could angle the lamp units onto dancers starting way back at 300 feet and achieve full density of light. Then, as any dancer came towards the camera, he would go into leak light, as opposed to the full reflected density coming off the normal screen which had been silvered. The beauty of it was that Ossie, who was up against light problems all the time, could use this system plus the LIGHTFLEX system and lose no light whatsoever.

In one sequence, they were shooting at the World Trade Center in a set representing the Emerald City, where they had enormous great gem-like forms (emeralds) and lamposts and a dance floor with about 400 dancers on it and 41,000 bulbs under it which changed color. By using the combination of systems mentioned above, not only could one change the color of the scene, but one could also change the color of the "emeralds" and lamposts which had been covered in the 3M material. So now you had a color overlay—which, for example, might start red and then gradually turn into yellow—and one could simultaneously change colors on anything that was covered with the 3M material.

One of the most exciting dance numbers is the Graffiti number, in which all the walls are painted with grafitti. Sections of the wall and some of the costumes were designed in such a way that the graffiti were sprayed onto them with 3M material. Some of the images on the walls were cut out so that the dancers literally fit into them. You could not detect the fact that they were there, because they looked as though they were painted on the wall.

Under normal lighting conditions you had the feeling that you were just in an ordinary street with graffiti work on the walls. That's the way the number starts—with just one person singing. Then gradually the blue overlay is brought in and one finds that silhouettes are coming out of the walls. As they come forward, they take on the color of the blue overlay. Next the special lamp units shine white light onto the set and all the graffiti that had been sprayed with the 3M material—flowers and other designs—become lit. You have a whole dance number where all of the artists are lit by these special lamp units and overlayed

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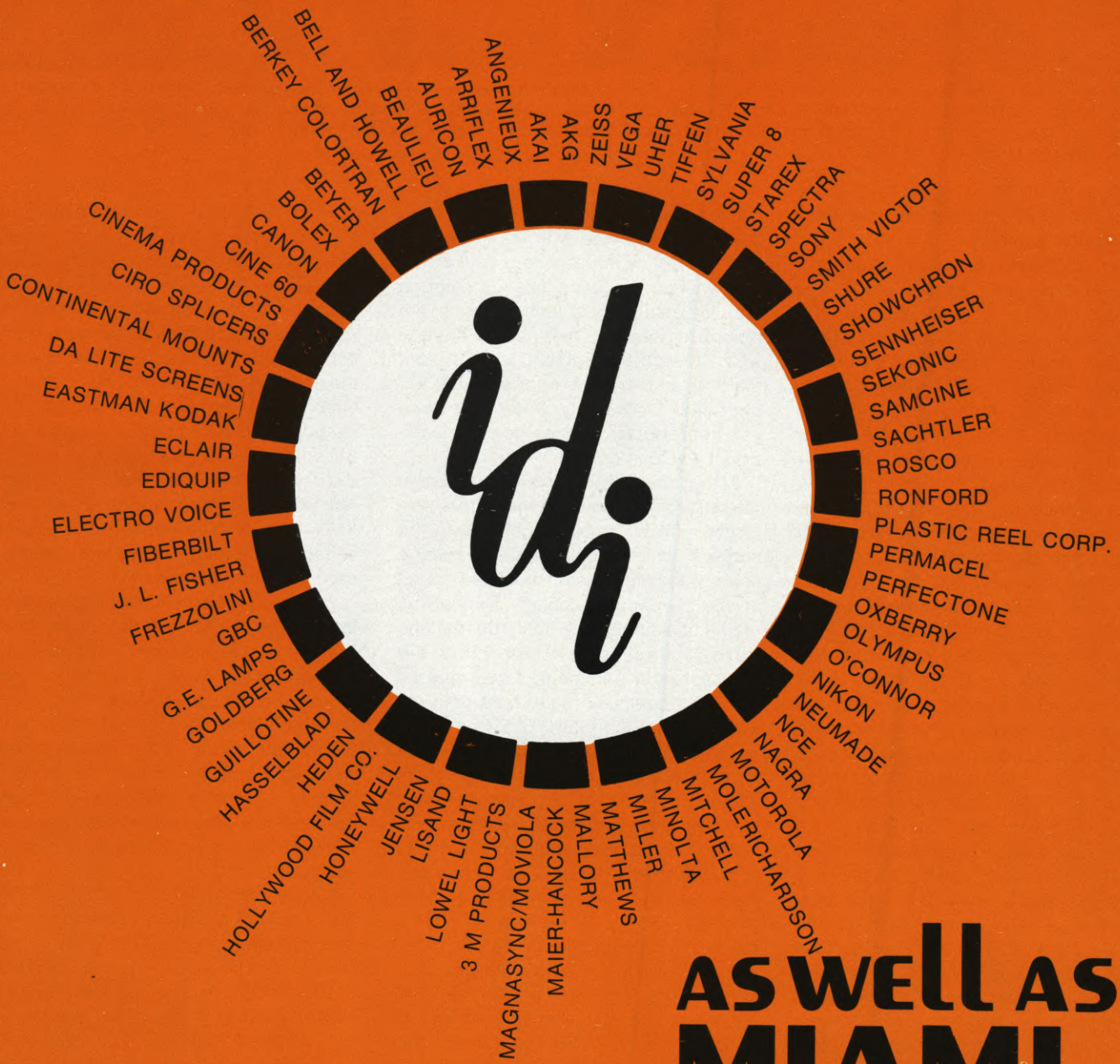

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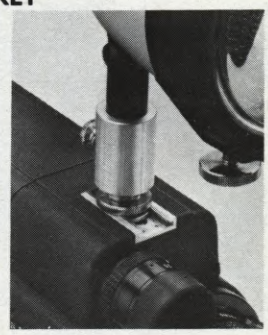

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FOLLOWING THE YELLOW BRICK ROAD FROM "THE WONDERFUL WIZARD OF OZ" TO "THE WIZ"

From the original book, written almost eight decades ago, have come numerous stage and screen versions of the Oz tale, but none more colorful or exciting than the latest—the film called "THE WIZ"

THE STAGE MUSICAL

On January 5, 1975, "THE WIZ" opened on Broadway at the Majestic Theatre. The musical comedy, produced by Ken Harper, had its premiere in Baltimore on October 21, 1974 and proceeded to Detroit and Philadelphia before arriving in New York.

It was in 1970 that the idea for a contemporary all-black version of the classic was conceived by Ken Harper, who had been working for WPIX-Radio in New York as disc jockey, music director and public affairs director. Composer and lyricist Charlie Smalls flew with him to California to arrange the initial financing by 20th Century-Fox.

After a shaky start, "THE WIZ" went on to conquer Broadway, winning seven of the 1975 Tony Awards (Antoinette Perry Awards), the stage equivalent of the film Oscar. The categories were:

Best Musical
Best Score (Charlie Smalls)
Best Director (Geoffrey Holder)
Best Choreography (George Faison)
Best Costumes (Geoffrey Holder)
Best Supporting Actor (Ted Ross, the Lion)
Best Supporting Actress (Dee Dee Bridgewater, Glinda)

The stage musical also won the 1976 Grammy Award (the recording industry's top prize) for Best Original Cast Show Album.

Other participants in the original production included: William F. Brown, who wrote the Book; Tom H. John, Settings; Tharon Musser, Lighting; Harold Wheeler, Orchestration; Charles H. Coleman, Vocal Arrangement; and Tom Pierson, Musical Direction.

The original cast featured the following performers in key roles: Dorothy (Stephanie Mills), Scarecrow (Hinton Battle), Tinman (Tiger Haynes), Lion (Ted Ross), The Wiz (Andre de Shields), Evillene (Mabel King), Glinda (Dee Dee Bridgewater), Aunt Em (Tasha Thomas) and Uncle Henry (Ralph Wilcox).

Here is a sampling from the reviews:
TIME (Ted Kalem): "A carnival of fun. It grins from soul, sizzles with vitality, and flaunts the gaudy hues of an exploding rainbow. Its talk is jumping jivernacular, its walk is a big-city strut, its dances have a blowtorch frenzy, and its songs range from a warm gospel glow to the rock beat of a riveter mining asphalt."
NEWSWEEK (Jack Kroll): "One of the most cyclonic blasts of high energy to hit Broadway in a long time. 'THE WIZ' has blazing high spirits, piping-hot servings of soul and sly sagacity about the pleasures and perils of fantasy."
ASSOCIATED PRESS (William Glover): " 'THE WIZ' is a wow and even Judy Garland fans can cheer. A jiving, colorful, jovial musical."

THE MGM MOVIE MUSICAL

Even before the film had opened, "THE WIZARD OF OZ" was being proclaimed as a cinema classic. The world premiere on August 15, 1939, at Grauman's Chinese Theatre was one of the great Hollywood events of its generation. The magic was repeated two days later at the Capitol Theatre in New York, where the film was accompanied by stage appearances of its star, Judy Garland, and her frequent film partner, Mickey Rooney, during the first week.

No expense or effort was spared by MGM Studios, headed by Louis B. Mayer, in the production of the film which cost $2,777,000. The producer was Mervyn LeRoy, whose career was principally as a director, and the associate producer was Arthur Freed, a songwriter who went on to become Metro's top musical producer.

The director was Victor Fleming, who left the film three weeks before the completion of shooting on March 16, 1939, to take over the direction of "GONE WITH THE WIND". The six-month shooting schedule began in September 1938 with Richard Thorpe directing, but filming was halted two weeks later, when Buddy Ebsen playing the Tin Woodman became ill from his silver makeup and was replaced by Jack Haley. At the same time, Thorpe took over directing and Judy Garland's wig of long blonde curls was changed in favor of pigtails.

The screenplay was credited to Noel Langley, Florence Ryerson and Edgar Allan Woolf. The songs were written by composer Harold Arlen and lyricist E.Y. "Yip" Harburg. Musical numbers were staged by Bobby Connolly.

Art director was Cedric Gibbons and Harold Rosson, ASC, was director of photography. The Kansas farm scenes were filmed in sepia with the rest of the film in Technicolor.

Judy Garland was 16 years old when filming began. When MGM bought the rights from Samuel Goldwyn (who had been planning it as an Eddie Cantor vehicle) for $20,000, the idea was to borrow Shirley Temple from Fox for the role of Dorothy. In the original Baum book and Denslow drawings, she appears as a little girl, definitely pre-teenage, so Judy Garland wore a special corset to bind her breasts.

The other leading parts (which were frequently dual roles with the Oz characters having their counterparts in Kansas), were played by Frank Morgan (the Wizard, Prof. Marvel and other bit roles in Oz); Ray Bolger (the Scarecrow and Hunk); Bert Lahr (the Cowardly Lion and Zeke); Jack Haley (Tin Woodman and Hickory); Billie Burke (Glinda); Margaret Hamilton (the Wicked Witch and Miss Gulch); Clara Blandick (Aunt Em) and Charley Grapewin (Uncle Henry).

"THE WIZARD OF OZ" received several Academy Award nominations but lost out mainly to "GONE WITH THE WIND", although *"Over the Rainbow"* won Best Song and Herbert Stothart for Original Score (musical adaptation). A serious effort to cut this song (which became Judy's "signature" tune) before release had been made by MGM studio executives. Judy Garland also received a miniature Oscar as 1939's outstanding juvenile performer.

THE ORIGINAL BOOK

Entitled *"The Wonderful Wizard of Oz"*, the book by L. Frank Baum was first published by the George M. Hill Co. of Chicago in June 1900. There were illustrations by a newspaper artist, W.W. Denslow.

According to Martin Gardner in his introduction to a Dover edition of the book, *"The Wizard* has become this country's greatest, best-loved fairy tale. It has never been out of print, and so many editions have been published, in the United States and abroad, that no one knows how many millions of copies have been sold." In 1939, MGM estimated that the novel had been read by over 80.000.000 people.

Although dozens of different illustrated versions have been prepared the original accompanying pictures by Denslow have the same insoluble link with the book as Tenniel's drawings for Lewis Carroll's *"Alice in Wonderland"*.

Says William F. Brown, it is "one of the fifteen best-selling books of the twentieth-century, with more than ten million copies now in print in twenty-two lan-

guages, including Tamil and Serbo-Croatian."

Lyman Frank Baum was born in Chittenango, New York on May 15, 1856 Deeply in debt at the time of publication, he had worked at many jobs—newspaper reporter, playwright and actor, owner of a variety store in Aberdeen, South Dakota, road salesman of china and glassware, founder of a national association of store-window dressers and editor of their first national house organ.

In Chicago at this time, he started writing for children in his spare time. His first book in 1897 was *"Mother Goose in Prose"*, which in its final of 22 stories based on Mother Goose rhymes introduced the character of a little farm girl named Dorothy. Illustrations were by Maxfield Parrish. Two years later appeared *"Father Goose: His Book"*, a collection of nonsense verse illustrated by his friend William Wallace Denslow.

Before publication, *"The Wonderful Wizard of Oz"* went through several title changes, beginning with *"The Emerald City"* to *"From Kansas to Fairyland"* to *"The Fairyland of Oz."* The story goes that the name Oz was coined by Baum after the bottom drawer of his file cabinet, which was labeled "O-Z."

In the remaining nineteen years of his life, Baum wrote more than sixty books, which included thirteen additional Oz tales. Nineteen Oz tales were written after his death by Ruth Plumly Thompson; three by John Rea Neill, who illustrated all the Oz books after the first one by Denslow; two by Jack Snow; one each by Rachel Cosgrove and Baum's son, Col. Frank Joslyn Baum. There are forty in all.

(N.B. In the N.Y. Times of Aug. 22, 1977, Aljean Harmetz states that there are 41 official Oz books, 21 written by Ruth Thompson.)

There is an International Wizard of Oz Club, which was founded in Jan. 1957 by Justin Schiller, then a 14-year-old schoolboy and now a rare-book dealer in New York. They publish a magazine, the *"Baum Bugle"*, and have regional meetings (Munchkins in the East, and so forth).

OTHER VERSIONS ON STAGE AND SCREEN

The first dramatization of *"The Wonderful Wizard of Oz"* was an enormously successful stage production called *"The Wizard of Oz"*, which opened in the fall of 1902 in Chicago at the Grand Opera House and came to New York in early 1903 at the old Majestic Theater in Columbus Circle. It played for eighteen months and was one of the big hits of this century's first decade. Anna Laughlin played Dorothy, Arthur Hill was the Cowardly Lion, and the biggest hits were two vaudeville comedians, Fred Stone as the Scarecrow and David Montgomery as the Tin Woodman. Toto the dog was replaced by a cow. The play toured endlessly across the United States. Book and lyrics were written by Baum and music by Paul Tietjens and A. Baldwin Sloane.

Eight of Baum's Oz stories were staged during his lifetime.

In 1906, during a visit to Paris, Baum became interested in the infant film industry. In the next few years, he put together something he called "radio plays" (before today's radio was invented) in which he toured in a stage production, providing the narration himself for certain photographed images.

In 1910, a one-reeler was produced by Colonel Williem Nicholas Selig. Some accounts say that four one-reelers in all were actually distributed by Selig Pictures.

Living in Hollywood, California from 1911, Baum formed the Oz Film Company in 1913 and produced during its two years' existence three five-reel Oz features. They were entitled, *"The Patchwork Girl of Oz"*, *"The Magic Cloak of Oz"* and *"His Majesty, The Scarecrow of Oz"* (later re-titled as *"The New Wizard of Oz"*.)

In 1925, a full-length silent film was made called *"The Wizard of Oz"*, based on a script written by one of Baum's four sons, L. Frank Baum, Jr., in collaboration with the film's star and director, comic Larry Semon. A rather mature Dorothy was played by Frank Baum's wife, Dorothy Dwan. She lands on Oz with three farmhands who are transformed into the Scarecrow (Larry Semon), the Lion (G. Howe Black) and the Tin Woodman (played by Oliver Hardy, before he started teaming with Stan Laurel). The Wizard was played by Charlie Murray in an adaptation that took liberties with the original. The film was released by Chadwick Pictures.

In 1934, Producer Samuel Goldwyn bought most of the Oz stories from the Baum estate with the idea of preparing a vehicle for comic Eddie Cantor. These rights were sold to MGM a couple years later and formed the basis for the 1939 musical starring Judy Garland.

For many years, a stage adaptation of "THE WIZARD OF OZ" has been performed by stock companies using the Arlen-Harburg songs from the MGM musical. Metro never made a sequel or remake of its big success, but pieces of it were seen in its 1974 musical compendium, "THAT'S ENTERTAINMENT!", which was put together by Jack Haley, Jr., husband of Liza Minnelli—two second-generation Ozians.

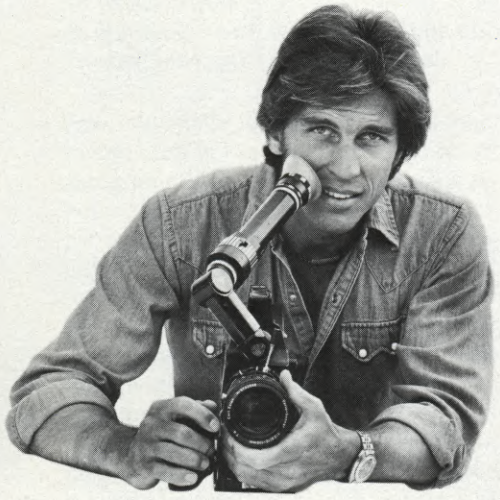
Judy Garland repeated her role as Dorothy Gale in a Lux Radio Theatre production in December 1950.

An animated cartoon featuring the Oz characters was produced in 1962, with sixteen-year-old Liza Minnelli as the voice of Dorothy; Milton Berle as the Cowardly Lion; Mickey Rooney as the Scarecrow; Margaret Hamilton as Auntie Em; and Ethel Merman as the Wicked Witch. Songs were written by Sammy Cahn and Jimmy Van Heusen. An impressive array of names, but the film took several years to find a modest release by Filmation Associates due to a tangled legal situation. ■

No longer a little girl residing in the cornfields of Kansas, Dorothy, as played by Diana Ross in the film version of "THE WIZ", is now a 24-year-old schoolteacher on a journey of self-realization who gets whisked off in the vortex of a Harlem snowstorm. Despite this major change, the film is very faithful to the original book.

The Arriflex 16SR's helpful viewfinder:

They pay you to *see*.
Here's an instrument that actively helps you to do that.



Whatever position you bend its finder to, the 16SR's image is always upright and correct left-to-right.

Three-way rotation

The finder swings over from one side of the camera to the other—190°. It also rotates 360° parallel to the camera's side. And it swivels 25° *out* from the camera's side.

Key to versatility: symmetrical design

On most reflex camera designs, the mirror/shutter is mounted to the right of the aperture and the finder to the left. On the 16SR, the mirror/shutter is below the aperture and the finder is above.

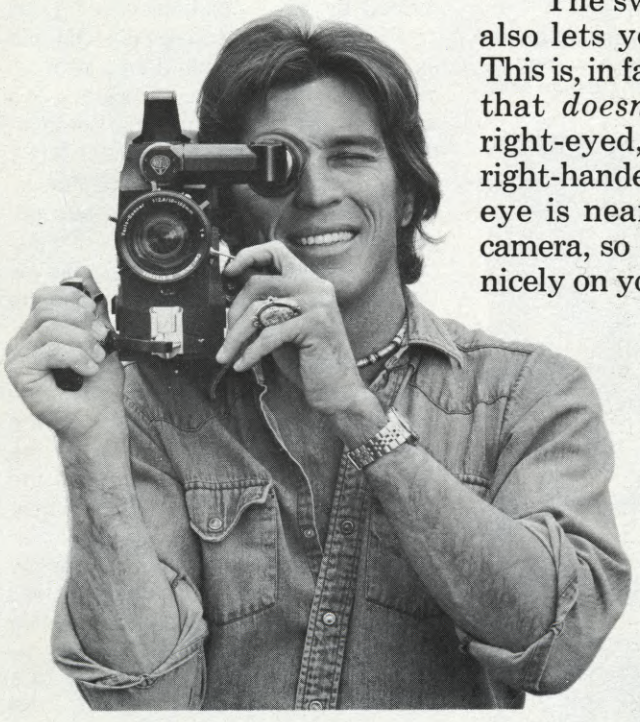
Ambidextrous

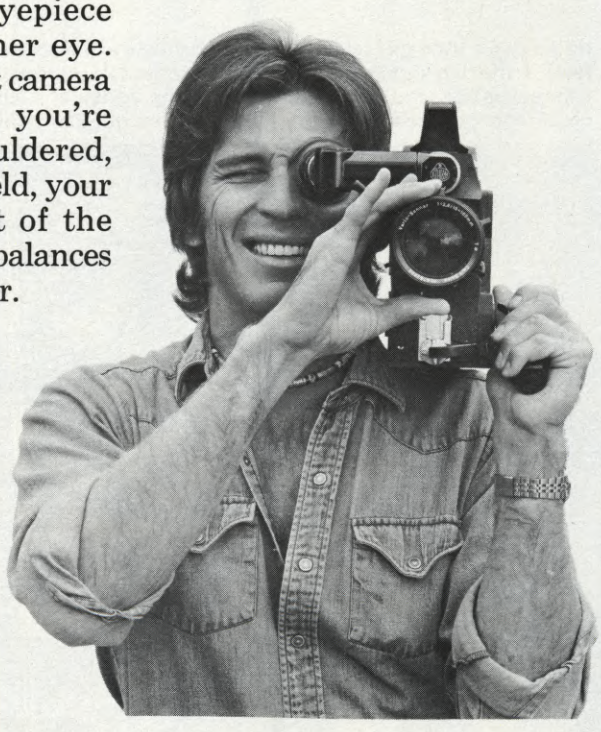
So the primary optical path is vertical, instead of horizontal. It doesn't favor the left side; it doesn't favor the right. And it's equally happy pointing straight up—or any angle in between.

Adaptable

The swivel-out eyepiece also lets you use either eye. This is, in fact, the first camera that *doesn't* assume you're right-eyed, right-shouldered, right-handed. Hand held, your eye is near the front of the camera, so its weight balances nicely on your shoulder.

The seven-inch finder extension makes high angles easier. So does the shutter, which always stops open to the 16SR's viewfinder.





Steal candid shots by looking the other way.

Fiber focus screen

Compared with a groundglass, the 16SR's fiber screen transmits more light. Viewing is easier at low light levels. Edge-to-edge brightness is more even, too. And there's much less light scatter, and no groundglass grain. So image contrast is better and it's easier to see when you're stopped down.

Superspeed optics

To match the latest fast emulsions and fast lenses, the entire viewfinder system is a new, large-aperture design. The Zeiss lens transmits T1.3 to the film and the Arriflex finder transmits it to your eye.

Big, bright image

Moreover, the eyepiece image is magnified twelve times. All in all, the 16SR has the brightest and the sharpest viewfinder image available in 16mm. *Helpful.*

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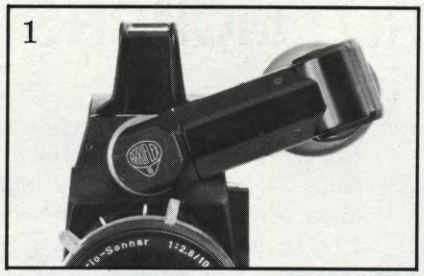
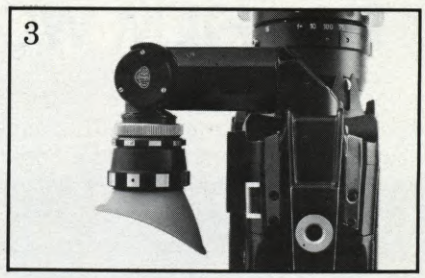
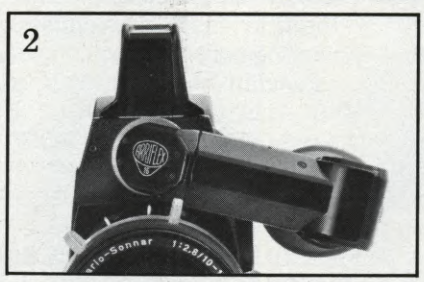
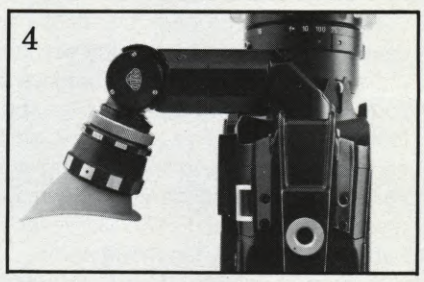


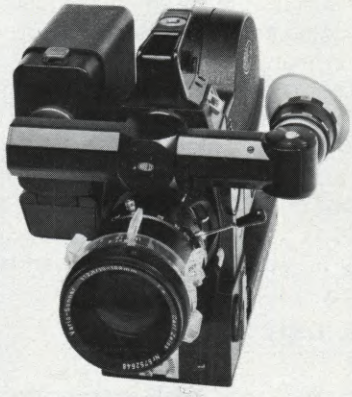






Custom fit

With the 16SR resting on your shoulder, you can adjust the height of the eyepiece (photos 1 and 2); and you can move it away from the camera's side (either side), to suit either eye (photos 3 and 4).

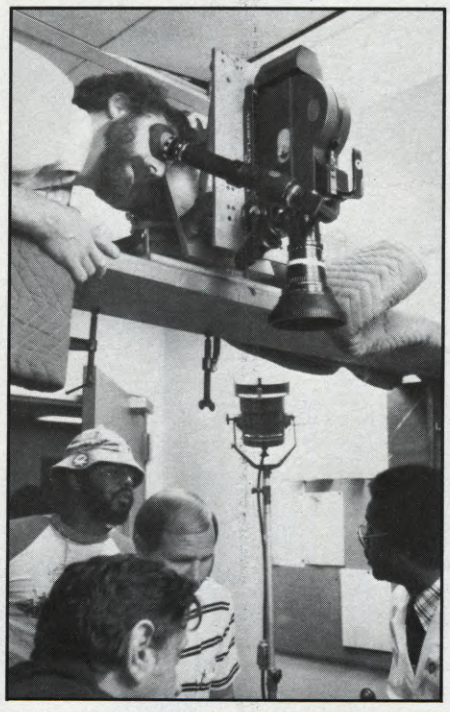


Video monitor

In the photo at left, you can see the Video Adapter mounted on the 16SR's right side. It's easy to attach. On the left side, you view the reflex image normally. The video pickup runs on 12VDC and 110VAC; and it works with most standard remote TV monitors or videotape recorders.

Faster setups

Wherever you put the camera, you can quickly see the shot — and so can the director.



16SR at work: left: Jack Cooperman; right: Jack Green. Photographs by Ron Grover.

THE FILM WORLD MOURNS LEE GARMES, ASC

When Lee Garmes, ASC, passed away on August 31, following a brief illness, his many friends were not only shocked and saddened, but some of them were also surprised to discover that he was 80 years old.

Their surprise is understandable, because if there was one quality which he radiated constantly it was an unabashed *youthfulness.* Although having spent four-score eventful years on this earth, he remained young in spirit, young in attitude and young in his enthusiasms up until the last day of his life. Moreover, he had a great affinity for young people. He was an avid admirer of such young film geniuses as George Lucas and Steven Spielberg, and he spent a great deal of time lecturing to film students in colleges and universities throughout the country. His kindness in helping many of these novice filmmakers on a personal basis was legendary in Hollywood.

Recently in these pages, Mr. Garmes' colorful 60-year career as a cinematographer, producer and director was reviewed in some detail (see *American Cinematographer,* September 1978), but certain facts bear repeating. He began his film career in 1916 with the New York Motion Picture Co. and joined Thomas H. Ince on the West Coast shortly afterward. Going to work, he used to take the famous "Red Car" trolley from Hollywood to Santa Monica, where he transfered to a horse-drawn shuttle for the final run to "Inceville" on the beach.

Rising to the top of his profession as a cinematographer, he photographed such outstanding films as: "SCARFACE", "DISRAELI", "THE JUNGLE BOOK", "LILIES OF THE FIELD", "MOROCCO", "SINCE YOU WENT AWAY", "LOVE LETTERS", "SPECTER OF THE ROSE", "THE SCOUNDREL", "THE BIG FISHERMAN", "DUEL IN THE SUN" and "THE SHANGHAI EXPRESS", for which he won an Academy Award.

Although officially uncredited, he also photographed a considerable portion of "GONE WITH THE WIND".

While maintaining a very busy professional schedule, Mr. Garmes found time to contribute to the motion picture industry in many constructive ways.

The much-honored Mr. Garmes was recently accorded a "Tribute to Lee Garmes, ASC" by the Tucson Museum of Art and the University of Arizona, and the mayor of Tucson proclaimed May 25th, 1978 as "Lee Garmes Day". A few weeks later he was honored on an even larger scale by the Directors Guild of America, in association with the Los Angeles County Museum of Art. Many of the most prominent stars, directors and producers in Hollywood turned out to salute him on the evening of June 2nd.

The high esteem in which he was held by his colleagues is evident in the following excerpts from tributes paid him in person, on tape and by telegram on that occasion:

Ben [Hecht] and Charlie [MacArthur] used to declare that with Lee Garmes you didn't need a director; he could make the actors' performances with his camera . . . Well, feeling as they did about Ruth and Lee Garmes, it's no wonder they lured him away from all the money of Hollywood to come to New York and work with them on two pictures that have become classics, "CRIME WITHOUT PASSION" and "THE SCOUNDREL", in which Noel Coward starred. Together they made some mighty fine pictures and I'm very happy to send this greeting to Lee Garmes.

HELEN HAYES

All the members of our A.S.C. Board of Governors send their love and respect to Lee tonight. Lee is noted so much for his enthusiasm and youthfulness in everything that we get into, and he is most progressive. It's like talking to a young boy when you get into new things with him . . . It is a pleasure working with Lee, and I hope there will be many more years of such association. He's a grand man.

LINWOOD DUNN, ASC

We've gotten together this evening to honor Lee Garmes as a master of the camera, the tool without which the movie would not exist. I've only been acquainted with Lee and lovely Ruth for about 30 years. His relationship with my husband, Josef Von Sternberg, went back possibly another 20 years. Garmes is the name that is synonymous with motion picture magic and greatness . . . His individual images masterfully coordinated with the wishes of Von Sternberg in a series of evocative films—"MOROCCO", "DISHONORED" and "SHANGHAI EXPRESS". I'm happy to be part of this assembly this evening. Lee and Ruth, I'm honored to be able to salute you.

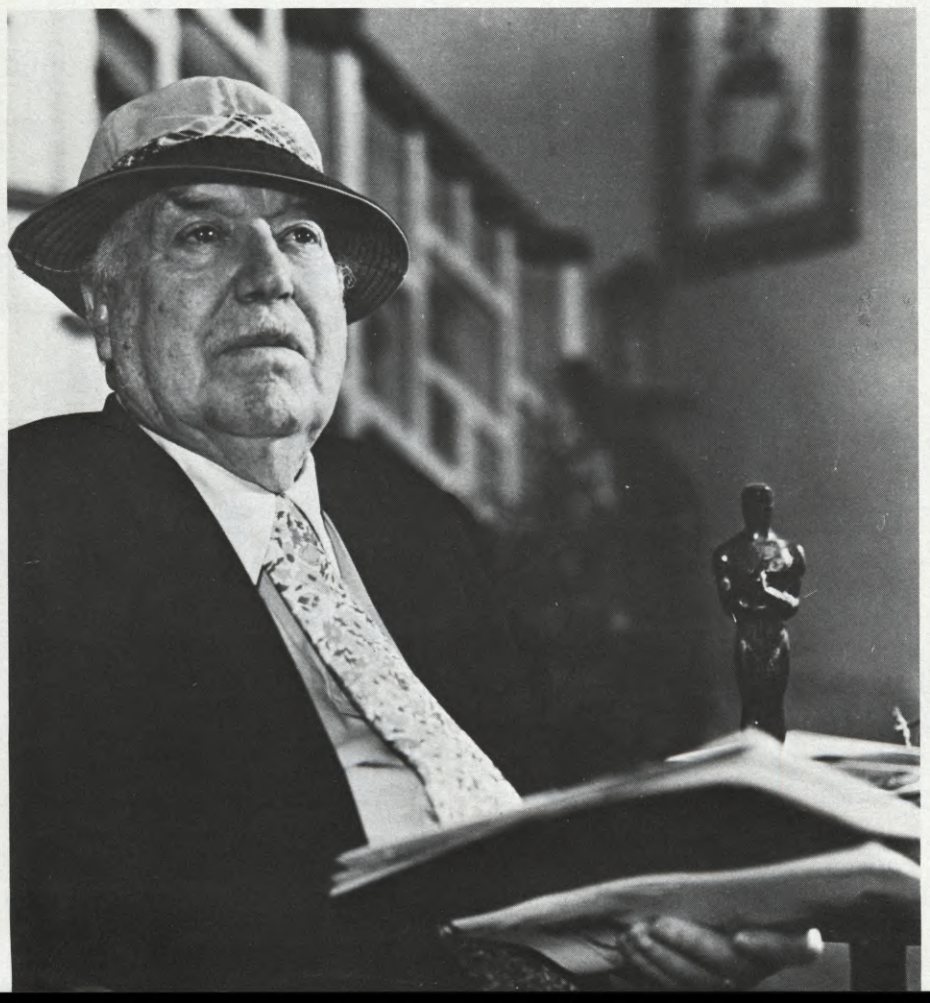
(MRS.) MARY VON STERNBERG

Congratulations, dear Lee, on this evening. My face was not unfamiliar to your camera during some excitingly creative times . . . Being in front of your machinery was so comforting to all of us carrying SAG cards, because we had such full confidence in your great talents . . . Your effort is always your best and it never fails to raise the general standard surrounding it. Thanks so much, Lee, for your leg up in my career and, again, sincere congratulations.

JOSEPH COTTEN

I welcome the opportunity to add thoughts and words about my longtime friend and compatriot, Lee Garmes. Although he beautifully took care of every detail of his department, photography, his vast experience gave him awareness of filmmaking well beyond that area. My feelings were that it was a privilege to have such a knowledgeable coworker close at hand . . . Now, couple this with a most pleasant and kindly disposition

LEE GARMES, ASC
1898—1978



During his six decades in the motion picture industry, Lee Garmes became known as a versatile stylist who could adapt his talents to a wide range of subject matter. That quality is evident in these stills from a few of the outstanding films he photographed. (LEFT) "SMILIN' THROUGH" (RIGHT) "SCARFACE" (BELOW LEFT) Alfred Hitchcock's "THE PARADINE CASE" (RIGHT) "THE DESPERATE HOURS".

and the result is fine memories and a lasting friendship. Hail to you, Lee.

KING VIDOR

This evening is part of a program that is sponsored by the Special Projects Committee of the Directors Guild of America. I am very involved with that committee and the work it does in advancing the art of film. Lee Garmes was one of the forerunners of this program and has always been willing to pass along to young people his knowledge and know-how. He meets with them, helps them and advises them and he constantly goes out to colleges and universities to give lectures. I think it is marvelous for a man of his talent and experience to pass this on, and I do very much salute him for this special quality.

ROBERT WISE

Dear Lee, I'm sorry I cannot attend, but I must join this highly deserved and long overdue tribute. You helped me make a good picture in six weeks which would have taken at least eight weeks without you. Working with you was a great pleasure, both personally and professionally. Congratulations and best wishes.

WILLIE WYLER

Lee Garmes strikes a spark to us volatile young filmmakers and lights us on fire. If you can keep up with his pace—and I don't know of a 20-year-old in the business who can do it—you can learn a great deal. What you won't learn is anger, or taking yourself too seriously or how to hold a grudge. If you want to hear something bad about someone, don't ask Lee Garmes; he doesn't remember things like that . . . To Lee Garmes, nothing is impossible. As he says, "Hollywood is where miracles just take a little longer." These are some of the reasons I cajoled him into working with me on my next picture. I need him, and there is one more very important reason—I love him.

ANTHONY BOWERS

Lee Garmes, ASC was one of the true greats of Hollywood—a legendary figure, both as an artist and as a man. He is sadly missed by his many friends and colleagues in the industry. ■

Always among the first to welcome technical progress, Lee Garmes, in 1971 at the age of 74, photographed one of the first videotape features (later transferred to 35mm film) and became such an enthusiastic booster for the electronic medium that he said, "I hope I never see another piece of film."

ACOUSONIC RECORDING PROCESS
Continued from Page 1083

shooting the musical selections for the "Wiz" were done on 2-inch 16-track tape running at 15 ips. The tape channels were divided as follows:

Channel 1—bass,
Channel 2—drums,
Channel 3—guitars,
Channel 4—keyboards,
Channel 5—percussion,
Channels 6, 7, 8, & 9—vocals,
Channel 10—vocal lead,
Channel 11—warning beep tone,
Channel 12—open,
Channel 13—monaural mix of production number,
Channel 14—voice bar count,
Channel 15—Click track,
Channel 16—60 hz sync signal.

The 16-track tape machine was resolved by a Magna-tech 92C automatic resolver referenced to a Frezzolini crystal. The backup playback tape system was an Ampex AG-440 2 track using channel A for a monaural mix of the production numbers, Channel B a 60 hz sync signal. This machine could also be resolved with the Magna-tech 92C resolver. During the entire production of "THE WIZ" the 16-track never failed, so we never had to use the backup system, but it was a comfort to know that it was there.

The one-second warning beep that appears on Channel 11 of the production tape comes after the voice slate and about 10 seconds ahead of the audio. This beep is fed via an audio cable to the camera and fogs the film coincident with the audio beep (however, some Panavision cameras are not equipped for this film fogging feature). A traditional production sound crew was employed for "THE WIZ" shooting schedule. We used a 2-track Nagra IV with the production audio being recorded on track A, and then with a monaural feed from the pre-record track (from our truck) being recorded on track B. This made it possible to have the pre-record track plus the new dialogue available the next day for dailies screening.

Before the production schedule started I made monaural 35mm work mixes of all the pre-record music so that we could have a test sync of the mechanical link-up back to the original pre-record tracks after the motion picture was shot. This would include all steps that would ever have to be used in the reassembling of the sound track and the film for the production of the movie. This proved to be a valuable test and gave us great peace of mind during the production of the film.

The next problem to overcome was the sweetening and adding of the orchestral parts to the original pre-record masters in order to allow us as much flexibility as possible to accomplish Quincy Jones' intricate and rich orchestrations. What I did here was use the Mag-link time-code system to synchronize our 24-track tape machine with the 35mm equipment that we would be using during the post-recording work and finishing of the music tracks for "THE WIZ". I had Automated Processes Inc. build a special mag-link unit for me with three data outputs to be used as follows:

Data output #1—the 24-track master.
#2—24-track work tape.
#3—35mm mag film.

I then made work tapes and 35mm mag time-code film as follows; Step 1—the 24-track work tape, which included a mix-down of the vocal and rhythm tracks of the pre-record sessions. We added time-code to the 24-track pre-record master tape; also we made a 35mm full-coat mag time-code film with the tracks assigned as follows:

Track 1—time-code.
Track 2—mono mix of the pre-record.
Track 3—click and bar count.

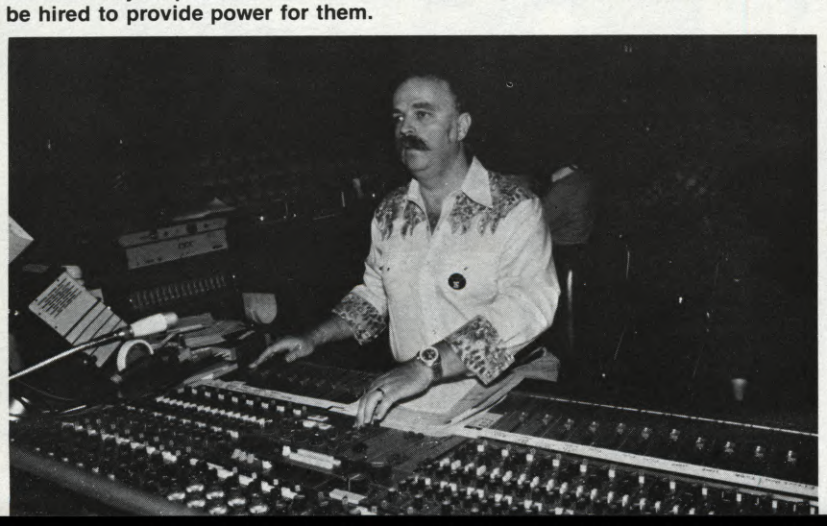
All of the above steps have to be accomplished simultaneously. Also, at this same time, the 24-track pre-record master 60 hz sync signal must be resolved. I made sure that there was enough time-code preceding the audio on the pre-record tapes to allow the normal picture start marks to occur within the time code. This made the synchronizing of the standard 35mm motion picture elements and the 24-track master a simple job. The film editor takes the 35mm full-coat time code film and syncs it up to the picture, adding a start mark that is coincident with the picture start mark. The time code film then becomes the master data and steers the 24-track tape machine that is being recorded upon for the post-production sweetening. I had API add stop and start relays to the equipment so that the 35mm time code tape stops and starts the 24-track machine automatically. With the sel-syn distributor system, any combination of 35mm mag and picture elements can be run in perfect synchronization with a standard 24-track tape machine. This worked very well for the recording of the production songs in "THE WIZ". It allowed us the option of recording either with picture, or recording it without picture, and then instantly playing back the recording to make sure that the cueing worked.

The next problem to overcome was the recording of the underscoring on 24-track tape while yet being able to play it back instantly in sync with the picture. What I did here was to record a 24-track master in the standard method with 60 hz sync and time code on it. At the same time we recorded a 35mm mag, three-stripe, full-coat with a stereo monitor mix, plus time code. The 35mm mag recorder is run in lock with the picture and before you start, a coincident start mark is put on the 35mm full-coat with the picture start mark. This allows us to play either the monitor mix or the 24-track in sync with the picture cue. Before the final film dubbing the music tracks are mixed down to a single six-track, 35mm mag recorder. Of course, the Dolby noise reduction is used in all these phases.

In the numbers where two 24-tracks are used together to accomplish the recording of the musical number, the mag-link time code is used to synchronize the two machines together. These then are reduced to a six-track 35mm magnetic music mix with Dolby noise-reduction which is used in the traditional film dubbing studio.

The Accusonic Recording Process greatly enhances the realism of the sound of this recording, making it possible for the first time to offer the listener true audio stereo images in the exact perspectives as they occur during performance. ■

Bruce F. Swedien, who developed the Acousonic Process, followed through on every phase of the recording and reproduction of sound for "THE WIZ", including playback for filming the musical numbers. Playback involved 65 speakers for the Emerald City sequence at the World Trade Center and special generators had to be hired to provide power for them.



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Continued from Page 1072

QUESTION: How many generators did you require for all that lot?

MORRIS: Norman Leigh, my gaffer, calculated that we required 14 usable generators at one time and, as the cost of shooting at night was so enormous, we agreed to keep three in reserve to push in at a moment's notice in case any one broke down. Luckily these were only very rarely required.

QUESTION: What was the cost per night of shooting on that set?

MORRIS: It was felt prudent to tell us before we started shooting how much the overhead per night would be and we were told $250,000 per night on the big Emerald city set. I have to say that I am very glad that I was given this figure as it made me realize that in no way could there be any question of experimentation or trying something new after we had decided on the overall plan.

QUESTION: What you are saying really accentuates the degree of responsibility that devolves on every member of the crew from top to bottom. Even the second assistant cameraman when he takes an exposed magazine into the darkroom has an enormous amount of somebody else's money in his hands. Should he forget to turn out the light, it would cost maybe, a quarter-of-a-million dollars. What other exterior sets were outstanding?

The LIGHTFLEX lamp units shown lighted up on the front of the Panaflex camera. Morris hit upon the idea of using this exotic color overlay system to lend a magical aura of fantasy to the earthbound realities of New York City. The inspired technique succeeds brilliantly, making possible a number of unique effects.

MORRIS: I think it is fair to say that all the exterior sets were outstanding because of the importance of carrying the fairy tale theme of the book right through the picture. I cannot think of any of our locations that were not stunningly created and brilliantly finished by the art department which gave the picture that wonderful blend of Pantomime and reality that to me is such a fascinating part of the whole movie.

QUESTION: How big a problem was it keeping ordinary people and ordinary motor cars out of the background in these sets?

MORRIS: Luckily, that responsibility does not fall upon my shoulders, but rests with the production department. But I think it is fair to say that it was a problem keeping modern New Yorkers out of our picture, as well as modern cars, buses and overhead trains. However, the New York crews are very used to dealing with this, as so much of their work takes place on the streets of the city and I was amazed how efficiently and simply they did this particular job. The New York City authorities from the major's office downward gave us all the cooperation that we required and when I think of the problems that we have when shooting in London, I realize just how much that cooperation means to the making of a movie of any shape or size in New York.

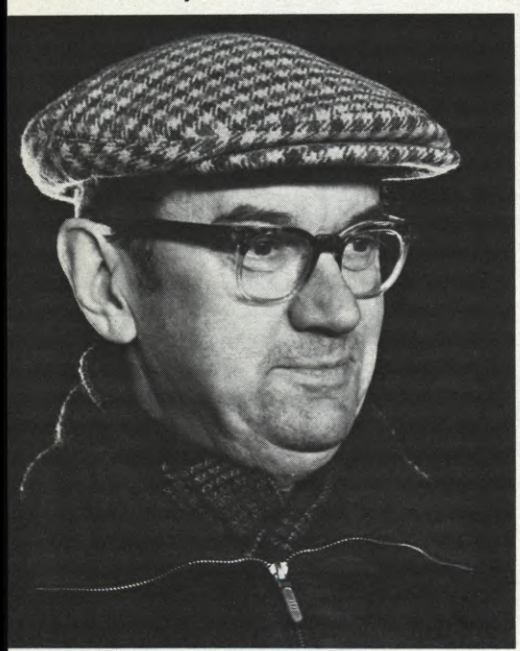
QUESTION: Tell me about the studio shooting and the studio itself. I have never associated New York with a major studio facility.

MORRIS: The Astoria Studio in Queens was used for all studio shooting. It is a four-walled complex with one huge stage, equal in size to any that I know of in Europe, and it has several smaller stages on different floor levels. We had some pretty large interior sets to photograph here, but the facilities were every bit equal to the occasion and I was never lacking in any one facility that I might have required. I had all the lamps that I asked for, all the grip equipment, all the camera equipment and the studios were simply ideal for this particular picture.

QUESTION: What were the technical requirements that you had that were beyond the normal?

MORRIS: I don't really think I asked for anything beyond what I would normally require for any movie, other than that I needed many, many, many more of them.

Even before he photographed "FIDDLER ON THE ROOF" through a lady's brown nylon stocking (which won him an Academy Award), Ossie Morris had established a solid reputation as an innovator and experimentalist, ever in search of unusual camera styles.



The difficult part for me was the fact that it was a four-wall complex and I could not suddenly turn around and ask my gaffer for a particular piece of equipment, as I might do at a studio which services motion pictures all the time, because it simply would not be available. Let me give an example: I like using 5K and 10K skypans hanging from the roof with silk skirts over them to give a soft overall light. I use this technique quite a bit, and in many studios back in England they run a stock of these particular skirts and should I suddenly ask for them they are available. But in working in a four-wall complex I quickly realized that this is not possible. These things have to be secured from a rental house or maybe even made specially and this cannot be done at short notice. Therefore, I found it very necessary to train myself to thinking well in advance about anything that I might require and insuring that my gaffer was given a list of these requirements well ahead of time in order that he might send to the various rental houses to collect them or even have them made.

Outside Dorothy's apartment (supposedly in Harlem, but actually in Brooklyn), a technician wrestles a huge hose to spray artificial snowflakes onto the street. Several tons of polystyrene shavings were used to simulate the snowstorm, in the vortex of which Dorothy and her dog, Toto, are whisked away to the magical Land of Oz.

QUESTION: What about your camera equipment for a picture such as this?

MORRIS: Sidney Lumet is a very fast director. His magic comes from the speed that he is able to generate in his work. He believes very firmly in using only one camera, but he uses a variety of lenses. I don't think I'm telling tales out of school when I say that he is not very happy with any form of zoom lens. He adores prime lenses and uses every one in the book—but not so with zoom lenses. Therefore, strangely enough, the camera requirement was a very simple one. Basically, the picture was shot with one Panaflex and a set of prime lenses, ranging from 14mm through to 150mm, and every one of those lenses was used over and over again. We utilized the Panavision system throughout (employing spherical lenses for a 1.85 aspect ratio), plus one hard-front Arriflex. Naturally, with such high overheads, it was necessary to carry a PSR as a back-up camera just in case we had any problems with the Panaflex. I'm more than happy to report that the PSR was hardly ever used.

QUESTION: Since the sets for this production were so enormous, unusual and spectacular, you must have had to coordinate very closely with the art department. Can you tell me a bit about that?

MORRIS: I really cannot answer your question adequately without mentioning the name of Tony Walton, the very special Production Designer on "THE WIZ". His work was quite staggeringly imaginative and gave me the opportunity, enthusiasm and encouragement to do things that I would never have believed possible. Each one of his sets was a brilliant mixture of fantasy and reality, which encouraged me to do the unusual and different in my photography. It was very important to keep Tony in my sights throughout the entire shooting period. He was full of ideas, thinking up new ones day-by-day and almost hour-by-hour, which quite rightly kept me on my toes. I have nothing but the highest regard for his contribution to this movie. I have always appreciated the importance of the production designer and the cameraman working hand-in-hand, but at no time was it ever more important than during the making of this movie. If I had not been aware of what Tony had in mind on every specific sequence, I realize that the picture would have got into an awful photographic pickle. The balance between reality and fantasy was knife-edge throughout and had to be maintained as such. I must also mention the name of Albert Whitlock. This is the sort of movie where he really came into his own and displayed his outstanding talents and I know that his support, together with Tony's, really influenced the style of the picture. For instance, Tony Walton's concept of linking the 'Yellow Brick Road' with the Brooklyn Bridge with the Emerald City in the background required some really fine matte painting from Whitlock. I think the finished result is quite stunning.

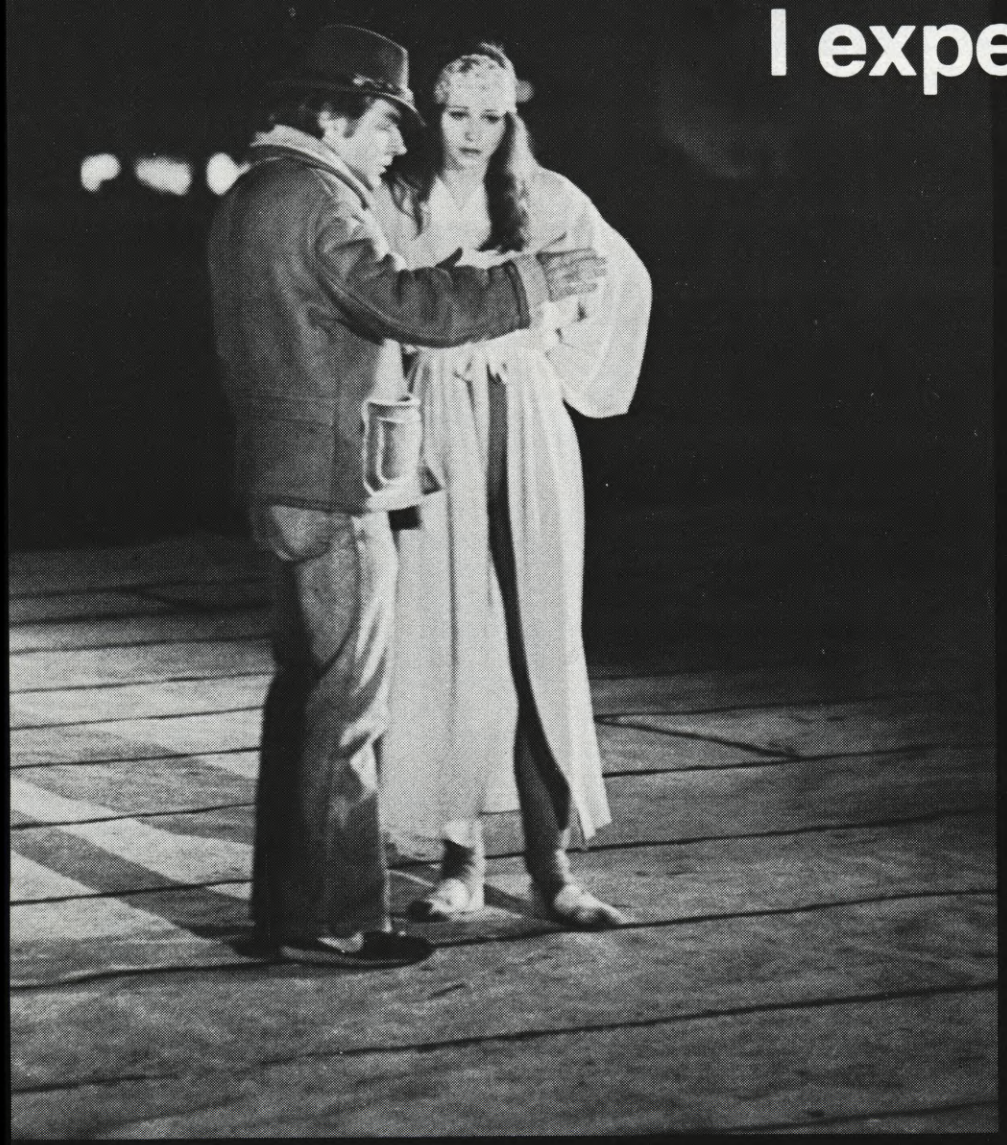
QUESTION: What specific visual effects did the art director demand of you?

MORRIS: In the Munchkinland set, it was required that the graffiti drawings on the walls come to life and become real figures. This was probably the toughest assignment of the whole movie. We finally achieved the effect by the use of fluorescent paint and 3M front projection screen material. With the careful positioning of lights as near the axis of the lens as possible and with the subtle use of dimmers and colored filters, we found it possible to create the illusion of figures coming out of the wall.

QUESTION: I would imagine that one of the most important aspects of the visual look of "THE WIZ" was contributed by Gerry Turpin's Lightflex accessory on the camera. Gerry, of course, had developed a forerunner of the system ("Colorflex") for use in photographing "YOUNG WINSTON", but how did you come around to wanting to use it on "THE WIZ"?

Continued on Page 1106

"All in all, TVC delivered everything I expected."



"I want to express my appreciation to you and the team at TVC for giving us such great service and quality on SLOW DANCING IN THE BIG CITY.

"As the director of the movie, it was always a delight to see the rushes. The color quality and light density were always just what I had in mind when I made the shot and there were never any scratches or snowstorms on actor's faces. As the co-producer, I appreciated the 6 a.m. screenings, and all the extra trouble you guys went through.

"All in all, TVC delivered everything I expected. And your incredible salami was greatly appreciated by all hands."

John G. Avildsen,
Director
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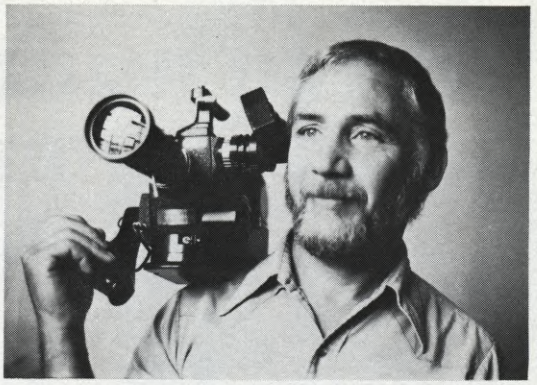
Bob Young and the ECLAIR win big at Cannes!



Cinematographer/Director Bob Young was recently awarded the coveted Cannes Film Festival "La Camera D'Or" Award for his film, "Alambrista." This remarkable film was made through the genius of Bob Young and the versatility of the Eclair NPR (a formidable combination) . . . shooting from the shoulder, the chest, the hip and the knee, while standing, bending, kneeling and running!

Although shot in 16mm, "Alambrista" won the 35mm award. The excellence of blow-up processing to 35mm by Du Art Film Laboratories certainly contributed to the film's big screen success.

To quote Bob Young, "The intimacy of the Eclair cameras gives me the mobility to control the making of a film." Only by viewing Bob Young's amazing work, can you appreciate the full meaning of his words.

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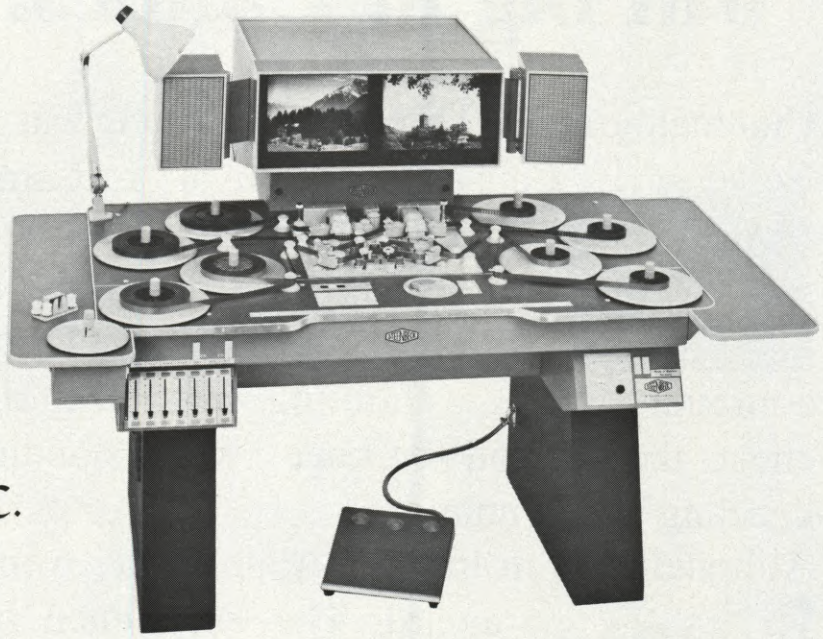

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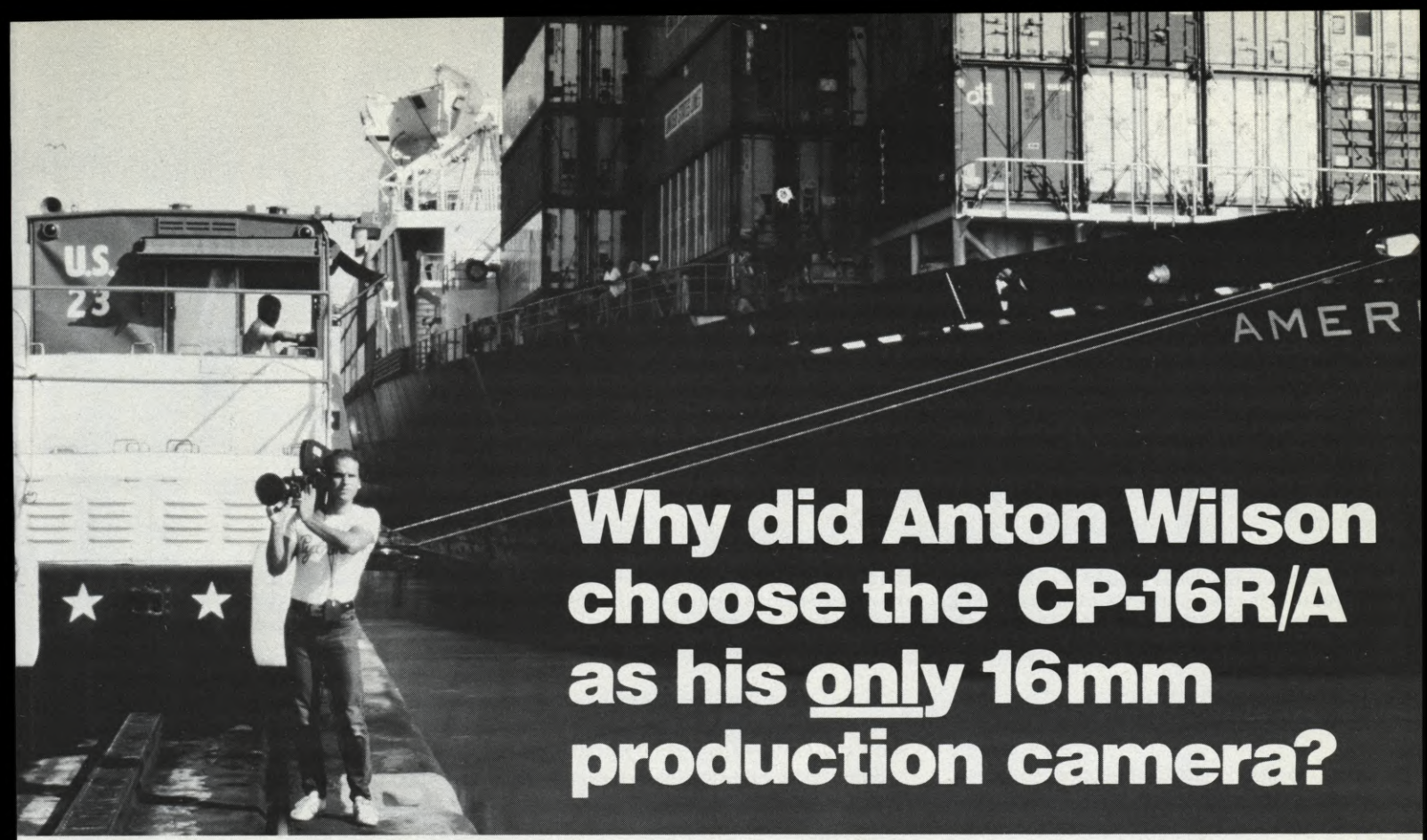

Why did Anton Wilson choose the CP-16R/A as his only 16mm production camera?

Known for his daring and inventive camera work, independent producer/cinematographer Anton Wilson has done it all: documentaries, special feature stories for television, industrials ... most notably for ABC-TV's *Good Morning, America* and for industrial giants like AT&T, among others.

A former technical director for Arriflex, with a background in mechanical engineering, Wilson is also an authority on motion picture production techniques and equipment design. He is vice-president of Anton-Bauer, manufacturers of power supplies for film and video use, and a contributing editor to the *American Cinematographer* magazine.

"The quietest 16mm camera I've ever owned."

"I first started out with an Arri 16BL, followed by an Eclair ACL," says Wilson. "Eventually I gave them both up. For various reasons, they just failed to satisfy my particular filming requirements.

"My assignments are so diversified and challenging, I need a versatile production camera that can do just about *everything!* And I find that the CP-16R/A is the only camera in existence versatile enough to do everything I want — and need — it to do. Best of all... it is the quietest 16mm camera I've ever owned."

"CP-16R/A is the only game in town!"

"The studio-silent CP-16R/A is ideal for all double system work. Yet it is lightweight, compact, and has all the sophisticated features and accessories I consider indispensable: variable speeds, behind-the-lens metering, orientable viewfinder... you name it.

"Most important, the CP-16R/A also has a high-quality single system sound capability that is integral to its original design — not a modification, or an afterthought.

"When I add it all up: CP-16R/A is the only game in town!"

Modern production techniques require high-quality single and double system sound.

Says Wilson: "Single system capability is essential these days for most documentary, industrial and PR films, as well as TV commercials. Because modern production techniques frequently call for the editing to be done on videotape, and single system sound makes video transfer real easy.

"That's why my CP-16R/A is frequently used much like a remote video camera... but with far greater flexibility and superior results. Production costs in the field are cut dramatically, and we are far less conspicuous and obtrusive than any EFP crew would be.

"Occasionally, we want the quality of double system sound *as well as* single system sound backup and editing ease. So we shoot both ways *simultaneously,* running an additional feed from the mixer into the CP-16R/A built-in amplifier, and recording single system sound on striped film. Incidentally, on a recent documentary shot this way, the single system sound quality was so outstanding that we never even used the sound from the Nagra tape!"

(Above) *Anton Wilson at the Panama Canal. "Filming an in-depth feature story about the upcoming canal treaty and its implications, we were able to move fast and reliably with the CP-16R/A, covering what would normally take two months in just ten days!*

"The camera functioned flawlessly, even in the torrential rain that overtook us when we followed General Torrijos into the Panamanian jungles.

"This documentary was so successful it aired both as a two-part series on Good Morning, America *and as a five-part series on the* ABC Evening News."

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Technicians worked around the clock to install the 26 miles of Yellow Brick Road linoleum in various locations of New York, including in front of the New York Public Library (LEFT), with its majestic stone lions. Since the library is located at the normally very busy intersection of 2nd St. and 5th Avenue, the long shots had to be filmed at 8 a.m. on the Sunday of Christmas week, but the vast marble facade had to be reconstructed in the studio for the filming of dance numbers.

BEHIND THE SCENES
Continued from Page 1069

programs in the communications field, and establishing a museum of film and television technology.

The Astoria Studios occupy a square-block in Queens on the corner of 35th Ave. and 35th St., with a former film laboratory across the street. There is a drive-in portico entrance on 35th Ave., where stars and Paramount executives arrived by limousine. The main floor of the building is occupied principally by a sound stage of dimensions (217'x120'x40') which once made it the largest in the world, until Astoria-born James Bond Producer "Cubby" Broccoli built his 007 Stage at London's Pinewood Studios. On the basement level, there are five additional small stages, and on the second floor there is a suite of offices.

Some remarkable talents made films at Astoria, including the Marx Bros. "'COCOANUTS", "ANIMAL CRACKERS"), Valentino ("MONSIEUR BEAUCAIRE"), Gloria Swanson ("SOCIETY SCANDAL", "UNTAMED LADY", "WAGES OF VIRTUE"), and five more features: Talluhah Bankhead ("TARNISHED LADY"); W. C. Fields in four comedies; Claudette Colbert in ten films, starring with Fredric March, Gary Cooper and Walter Huston; Noel Coward ("THE SCOUNDREL"); Flo Ziegfield brought his troupe to make "GLORIFYING THE AMERICAN GIRL".

Other motion picture landmarks at Astoria include the formation of the industry's first acting school in 1926 by Paramount's Jesse Lasky, with the intention of finding and developing new talent for the moving pictures.

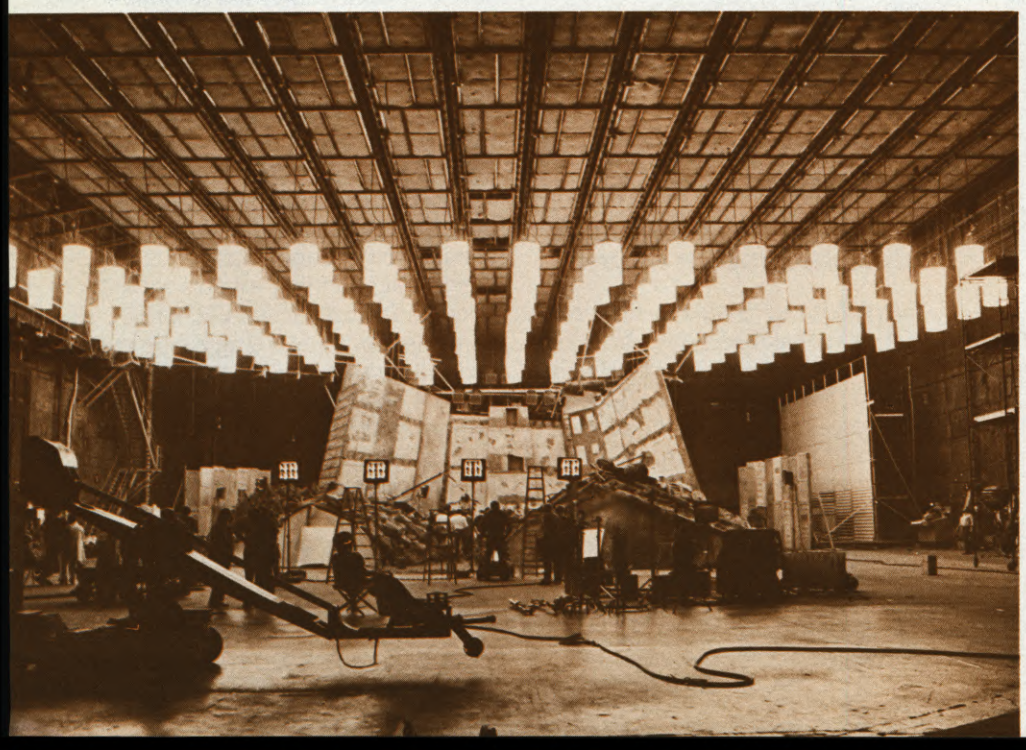
The first feature-length film with full sound was shot here—"THE LETTER" starring Jeanne Eagels.

One of the last films in 1938 was "ONE THIRD OF A NATION", an adaptation of a WPA (Works Project Administration) play starring Sylvia Sidney and Sidney Lumet as a child actor playing "Little Brother", a dead-end kid from the tenements.

Rouben Mamoulian directed a backstage melodrama, "APPLAUSE" with Helen Morgan, in 1929, which proved a movie landmark because of its innovations in new sound techniques and flexible camerawork.

For "THE WIZ", Diana Ross's dressing room occupied the original suite of offices used by Paramount founder Adolph Zukor.

The very large "exterior" set establishing the rubbish dump where Dorothy encounters the Scarecrow is dwarfed by the gigantic stage at the Astoria Studios. With 26,000 square feet of floor space, it is the largest sound stage in the world, with the exception of the hangar-like "007" Stage built for the filming of "THE SPY WHO LOVED ME" at England's Pinewood Studios.



THE STORY

Dorothy is a 24-year-old school teacher living in Harlem with her Aunt Em and Uncle Henry. She shies away from Aunt Em's matchmaking, from an advancement in class from kindergarten to high school, from an encounter with life south of 125th Street, until one night . . .

When Dorothy takes out the garbage for Aunt Em, her dog Toto rushes into a fierce New York snowstorm. Together they disappear into a vortex of snow crystals and sail through Magical Oblivion, only to come crashing down on huge electrical letters spelling Oz.

To her amazement, Dorothy learns that she has killed Evermean, the Wicked Witch from the East. In an urban jungle of

(LEFT) The apprehensive innocents arrive at the Emerald City—actually the 12-acre plaza of New York's World Trade Center (RIGHT), which Lumet selected "because it's the fakiest place there is." (BELOW LEFT) A huge ring in the center was illuminated from below (in three different colors) by some 37,000 light bulbs, each of which was hand-dipped by Rosco personnel. (CENTER) Dancers strut in outrageous costumes created (each in three colors) by 13 of America's top high-fashion designers. (RIGHT) Quincy Jones plays a 24-foot gold grand piano.

concrete and macadam decorated with graffiti, she is surrounded by Munchkin boys and girls and the bizarre numbers lady called Miss One, who transfers to Dorothy's feet the silver slippers of the Wicked Witch and tells her that only the Wiz can help her get back home. He lives in Emerald City at the end of the Yellow Brick Road.

Dorothy and Toto begin their journey and soon come across a Scarecrow in a corn patch located in a Harlem lot. He is tormented by four flashy crows feasting under his nose, who have persuaded him that he can't get down from his perch, can't do anything because instead of brains all he has are scraps of paper stuffing. Dorothy helps him down from the perch where he is tied and they decide to continue on together on the hope that the Wiz can give him some brains.

They "ease on down the road," following the yellow stripe until they find themselves in the world of a defunct amusement park (Coney Island), threading their way through the latticework of a giant rollercoaster. Abandoned underneath in a junkyard of sideshow attractions they hear the terrible moans of a Tinman crushed under the weight of a mechanical fat lady. They oil him up and straighten him out. But he is sad because

Continued on Page 1120

(LEFT) The timid adventurers pause at the entrance to the Emerald City, which is actually a huge bank vault. (RIGHT) The head of "THE WIZ" going full blast, with smoke coming out of the mouth and laser-like spotlights shooting out of the eyes. In addition to 20 sets shot on the stages of the Astoria Studios, the 13-week shooting schedule included 32 locations in different corners of the city.

PHOTOGRAPHING "THE WIZ"
Continued from Page 1099

MORRIS: It goes back to the fact that early on Sidney Lumet made it quite clear to me that he wanted the picture to be a fairy tale told against modern New York. He didn't know how to create this atmosphere any more than I did—nor, indeed, did Tony Walton. Tony had very specific, wonderful ideas about the background, but I had a built-in fear that if we took a Tin Man, a Scarecrow and a Lion, plus Dorothy, and just placed them against modern New York, nobody would believe these creatures in any shape or form. They were going to look like Pantomime figures walking down a street which bore no relationship to their presence. I was deeply conscious of this and when I explained it to both the director and the designer, they were sympathetic to my point of view, but could not come up with a solution. I realized in the end that the answer was going to have to come from me in some manner. I pondered over the problem for a long, long time and finally came up with the idea of putting a wash of color over the entire scene—rather in the way that a varnish on a painting coordinates colors. I felt that this might do the same with the foreground figures and the background. Having decided to try and go this way, the next problem was how on earth to do it.

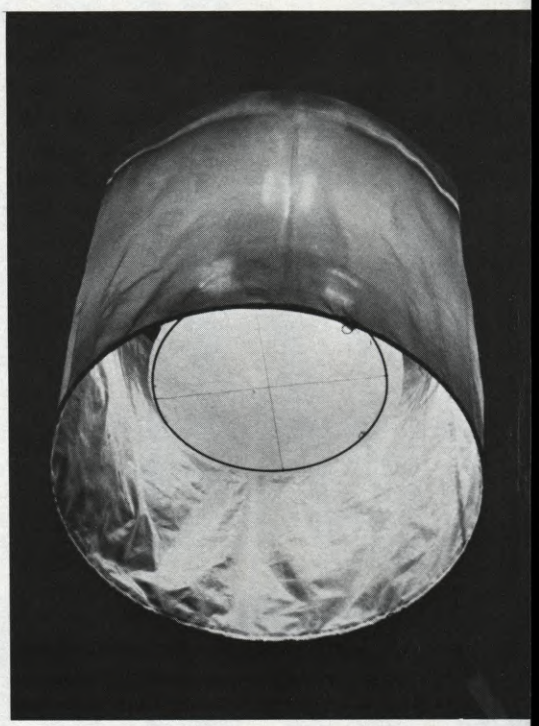
Some time previously I had talked to Gerry Turpin and had seen a demonstration of a new system he had perfected called the Lightflex. It involved flashing white light back through the lens during principal photography to both increase exposure and soften contrast in very harshly sunlit locations. It occurred to me that we might be able to adapt this system to suit our needs. I felt that if we could run a series of tests whereby we overlayed color instead of white light onto the film by means of the Lightflex system, we might have the answer to the problem that was bugging me. To cut a long story short, Gerry brought one of his systems to New York, we tested it with various colors, and it proved to be the answer to the very real problem of making an audience believe in these characters against a completely contrasting and conflicting background.

QUESTION: I'm sure you've been asked why you added the color at the time of shooting, rather than in the laboratory afterwards.

MORRIS: Yes, many people have asked that question, but I believe that there is a big difference between the two methods. By applying the color with Lightflex, the highlights and flesh tones burn through it and remain quite true and accurate, but the shadow areas are affected in varying degrees—from black through dark gray to light gray, etc. This, in my opinion, creates a very pleasing effect and one which I believe is right for the movie. By adding the bias in printing, it somehow didn't seem to work nearly as well. So we opted for doing it in the camera, if for no other reason than to enable Sidney to see the result the next day, rather than having to wait until the answer print stage.

QUESTION: What you are saying, then, is that if, for instance, you wanted a green bias, had you done this in the printing the faces would have turned green, but with Lightflex, the faces remain natural and only the shadows turn green. But couldn't you achieve the same result with colored flashing by the laboratory before processing?

MORRIS: I believe that would be a most risky way of going about the problem. The laboratory flashing must be a constant, with no flexibility, simply because the work has to be done ahead of principal photography—whereas, with the Lightflex, one has enormous latitude in being able to vary the amount of color added, simply by looking through the camera at the time of initial photography and setting the balance to the eye. This most certainly would not be possible with pre- or post-exposure flashing.

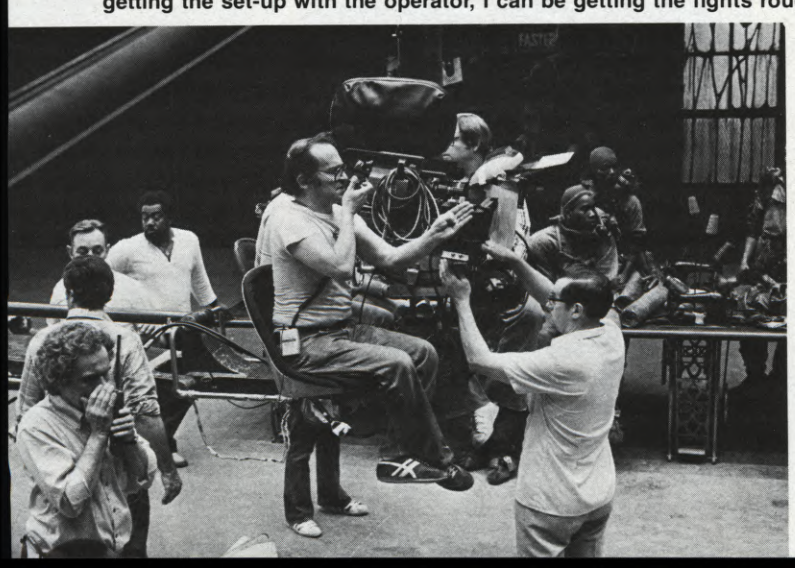


A silk-skirted light similar to the shrouded skypans which Ossie Morris used to illuminate vast stage areas with shadowless light. The circular "baseplate" (actually a silken disc) both reflects and transmits the light to create ultra-soft illumination.

QUESTION: Does the Lightflex do anything for exposure by way of reducing the requirement for light in the night scenes?

MORRIS: If white light is used with the Lightflex, it does increase the exposure

Sidney Lumet lines up camera angles on sets of "THE WIZ", a perogative which he reserves to himself. Of this method of working, Morris says: "He feels, as director, that he has the right to get the set-ups and this I will defend all the time . . . On the other hand, he respected the fact that I had a right to comment on a particular set-up if I was not happy . . . If anything, (this method) saves time, because while he is getting the set-up with the operator, I can be getting the lights roughed in."



quite considerably. However, we were always using colored light and, although I made no allowance for increased exposure at the time (because it gave a little more detail in the shadows), I do feel that it increases the exposure a little—although in this particular case, I ignored it as far as aperture was concerned.

QUESTION: While using the Lightflex, what alterations did you have to make in your lighting, if any?

MORRIS: Well, the wonderful part about the system, in the way that I used it, is that it doesn't need any technical adjustment—and maybe that's why I loved the system so much. It really can be used as an artistic addition to principal photography. I did not allow any exposure change for any colors that I overlayed. I merely selected a particular color for a particular sequence, put it into the Lightflex, switched it on, looked through the back of the camera, and adjusted the transformer which is used in the system (rather than the dimmer), because the color temperature of the lamp is not changed. I merely looked through the camera and said, "That's right. That's what I want." And then we rolled the cameras. That, I think, is what makes the system such a wonderful one to use. It is an artistic addition, rather than a scientific addition, to cinematography.

QUESTION: I'm told that you used the Lightflex to create a rainbow effect. Could you describe that, please?

MORRIS: The script called for several specific visual effects, one of which was a rainbow. I felt that I couldn't photograph this version of the Oz story without a rainbow appearing in it somewhere—and it happened that there was an ideal place for it in the story. Sidney gave me his blessing to develop this and, by means of a series of experiments, we found out that not only was it possible to overlay colors with the Lightflex (along the lines that I've already described), but we could also design specific effects to go into the film, of which the rainbow was one. I felt that in a long shot we ought to see the familiar circular pattern of the rainbow, and this we were able to create in the Lightflex through a system of curved gelatine filters. I also felt that we might be required to do close shots of people in the rainbow sequence and that, obviously, the curved effect of the long shot would not apply in closer shots. Therefore, we created a series of vertical, horizontal and diagonal effects

Continued on Page 1129

Setting up for a complex day of filming along the exterior precincts of Yankee Stadium in the Bronx, a few days after the World Series baseball victory. Scenes representing the "back entrance" of the Emerald City were shot here. Another major location was Shea Stadium, home of the New York Mets and Jets, directly on the flight path of La Guardia Airport in Queens. The long sloping ramps and escalators were used for the scenes in which Dorothy and her companions are chased by Evillene's motorcycle thugs, the Flying Monkeys.

Director Lumet tests the mobility of tile pillars which attack the protagonists in a subway terminal, seeking to crush them. The pillars, with people inside to provide the motive power, were much coveted by subway authorities who asked if they might have them after shooting was completed. Tony Walton suspects they might be useful for covert surveillance of the odd happenings that are known to transpire in New York subway terminals in the dead of night.

MAGICAL MATTE PAINTINGS

Continued from Page 1079

greatly reduced scale. The columns were meticulously painted to match the location film, story by story.

A miniature of the joining span was built to fit between the towers and painted to match. The camera, mounted on a nodal head at the exact scale height, was tilted in stop motion by a long lead-screw at a speed precisely matching the tilt done at sound speed on location. The miniature film was later dissolved into the production film with an A-and-B roll dissolve during release printing. To cover the slight discrepancies in the dissolve, Whitlock used a flashing light seeming to come from the building. The flash starts on the production shot (by means of a green-filtered lamp on the matte box) and continues on the miniature. In that moment, the transition is made from the real to the fantasy world.

Much of Whitlock's work on "THE WIZ" is in the snowstorm sequence that carries Dorothy and Toto to Oz. A vortex of snow sweeps down the street and envelops Dorothy. The whirlwind advances down the street toward the camera. In a down angle, Dorothy is seen spinning inside. A close-up of the whirlwind zooms back to reveal that it is resting in the hand of Glinda, the good witch. Glinda gently blows the whirlwind away, sending Dorothy flying through a magical oblivion. At the end of her flight, Dorothy crashes through a huge electrical sign spelling "Oz".

This short series of scenes gave Whitlock and his crew a real workout. To create the illusion of the snow swirling down the street, a tall six-sided structure was built, all black on the inside. Every other corner had an opening at the top where fans could drive Styrofoam snow into the black area. A spinning cage attached to an old drill motor was held in the center of the "roof", whirling more snow into the airstream by centrifugal force. A camera shooting upward from the bottom of the structure recorded the whirling and falling snow. That snow film was later added to a day street scene (made into night)

Test frames of the sequence in which the four adventurers catch their first glimpse of the Emerald City. (LEFT) Original photography of the New York skyline. (CENTER) Blue screen frame of motorized Styrofoam apple, which was about 8 inches in diameter. (RIGHT) The four principals (Michael Jackson, Diana Ross, Ted Ross and Nipsey Russell) photographed against a fluorescent blue screen.

(LEFT) Night shot of New York as the Emerald City, with the actors matted into a full painting by Albert Whitlock. (CENTER) A later version of the scene, in transition from the night painting to day. This clip is from an out take. (RIGHT) A continuation of the previous scene. The sun has become the Big Apple. This shot required six painted elements, 13 film elements and 40 separate passes through the matte shot camera and optical printer.

(LEFT) The four principals are barely visible here, photographed on a strip of Yellow Brick Road linoleum in the studio parking lot. (CENTER) Slightly over-cranked water, shot from a bridge in Long Beach. (RIGHT) Except for the actors and the water, the completed scene, as shown here, is entirely a Whitlock painting.

(LEFT) The four principals, shot against a 20 x 40-foot fluorescent blue screen, walk toward the camera. The depth of field needed was possible because of the high brightness obtainable from this screen. (CENTER) Original photography of the Brooklyn Bridge from the pedestrian walkway. (RIGHT) A composite of the two previous frames, with Whitlock's painted sky and other additions.

(LEFT) This "before" clip shows the former New York State Pavilion at the Flushing World's Fair grounds. The towers and ring at the top of the frame were too high for the 1.85 composition and would have been difficult to light. The four-sided lighting rig in the center had to be eliminated. (CENTER) The same set-up, with matte positioned in front of the camera, masking off unwanted areas. (RIGHT) The scene with matte painting added, showing 1-inch miniature elevator ascending. This shot was done entirely on the original negative (without duping), Whitlock's preferred method.

(LEFT) Original photography of a Bedford-Stuyvesant street, dressed with tons of plastic snow. (CENTER) The scene has been converted to night by darkening the sky and adding painted lamp globes, reflections and pools of light. The miniature tornado has been matted in, augmented with blowing snow, sprays of water, etc. The tornado zig-zags down the street toward the camera. The top is not seen in the 1.85 projection. The tornado itself is a 2-inch Styrofoam cone, dressed with cotton, paint and aluminum powder. The side-to-side and revolving motions were motorized. Progress down the street was simulated with an optical printer zoom. (RIGHT) The classic glass shot technique allows the camera to tilt 45° on its nodal-point head, following the characters into the scene. The sky is real. The buildings are painted on a 3 x 6-foot acrylic sheet mounted in front of the camera. This method is clumsy and time-consuming, but makes possible shots that can be done in no other way.

and a blue screen foreground of Dorothy.

The shots of the fully formed whirlwind were done with an artistically decorated Styrofoam cone about two feet tall. The cone was filmed, as it moved back and forth and rotated, through soft-focus split screens. This film was superimposed on the shots of the witch's hand and matted into the street scene.

The shots of Dorothy spinning in the whirlwind and flying through the air were filmed in front of the blue screen. Diana Ross was either flown from wires on an overhead track or held up by a pedestal that was later rotoscoped out.

The electric sign through which Dorothy crashes was a high-speed miniature, also filmed in front of the blue screen. With mattes of both elements, Dorothy could pass first behind, then in front of the sign as she fell through.

As Al Whitlock watched the results of months of work come together, he was generous in sharing credit with the other members of his visual effects team. "There are so many elements contributing to the success of any one of the major effect shots that even a minor miscalculation, by anyone, any place along the way, could have proved disastrous."

While he shares credit, he doesn't lay responsibility on anyone else. "There are always things you might choose to do differently if it were your picture," he says. "However, once you accept the assignment, your obligation is to search for and find the truth, the best way to make the illusion come true. You can dazzle people with science for a while. But you can't do that forever; eventually you have to put something on the screen that people can look at and judge. My belief is that we made an honest picture. I'm not bragging. If I thought we had failed, I'd say that, too." ■

MUNCHKINS AND WINKIES
Continued from Page 1075

I also asked Joel Schumacher, who was by then involved as screenwriter on "THE WIZ", whether he would be prepared to design the hooker costumes for the Poppy sequence. He'd had an earlier career as a fashion designer for his own shop, *Paraphernalia,* but he was initially hesitant about taking on the extra assignment. In the end he sort of plunged in and did not only the Poppy sequence with tremendous style, but he also did the coordinating of the Emerald City sequence costumes, which came from 12 different fashion houses. He did all the accessories for them, along with arranging for such things as jewelry, shoes and headgear, that were not coming from the fashion houses. Basically, what we did was go around to the fashion designers—Halston, Oscar de la Renta and the others—and choose things from their current or upcoming lines. We asked if they would be prepared to make them in our fabrics. That sequence goes through three color changes, so each costume was required in a green version, a red version and a gold version. We provided them with the palette and, in many cases, with the fabrics. Some people preferred to work with their own fabrics, but it was a marvelous way for it to happen. Everybody really got into the spirit of it.

Several designers—particularly Norma Kamali (whose work is astounding),—created original pieces for that sequence. We didn't choose stuff; they worked from scratch and did really remarkable things. Norma Kamali's designs are totally original—no echoes of any sort—and they really zing out. They have a kind of high flash to them, which was enormously valuable for the sequence as Sidney had conceived it. His initial image was that of a kind of media event—part disco, part fashion show—with everybody trying to upstage and out-fashion each other. So, although I was involved in the choice of pieces we were using and the coloring and fabrics and so on, the real load of work on that sequence was taken up by Joel and Anna Hill Johnstone and Gloria Gresham. The organizing and coordinating of the costumes was a mammoth activity, since we had 400 extras, plus the principals and various guards and robots. All the odd creatures in the sequence, like the guards and robots, I had designed, but all the high fashion things were entirely from the world of the high fashion people and Joel.

Except for that sequence, the rest of the costume designs were pretty much mine, although I had a wonderful assistant, Dona Granata, who, in some instances, took the concept of the designs I started out on and ran with them. For example, in the Munchkinland sequence, where the graffiti children had been frozen into their graffiti before Dorothy lands there, I think I designed only about 30 of their costumes, but Dona did well over 100 additional designs based on the original 30—not only variations on them, but new developments.

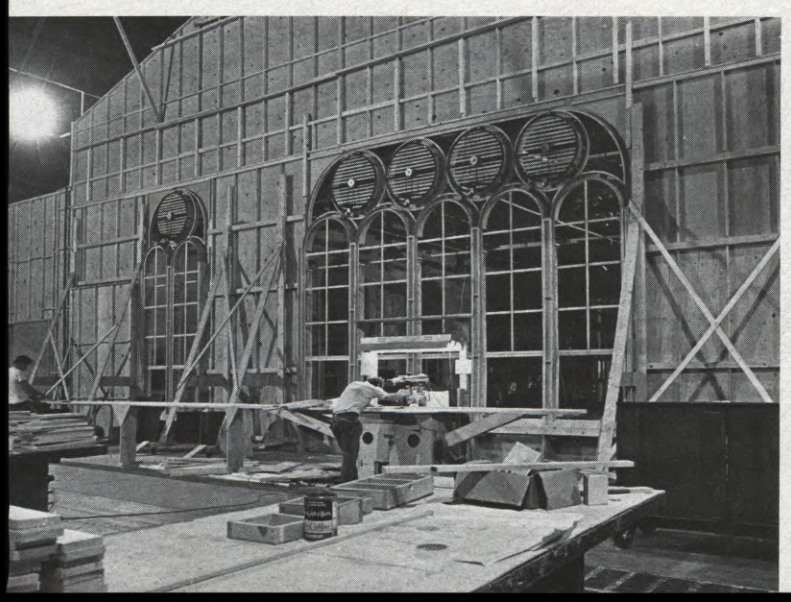
Phil Rosenberg, who is himself a Production Designer (he did "NETWORK" for Sidney Lumet) and is an old friend and longtime associate of mine from 20 years ago, agreed to work on the film as Art Director, which was tremendously helpful and a big gesture on his part. There were all kinds of suggestions that came from him or other people in the art department that contributed enormously to the overall work.

It is interesting to note that within the New York film industry there aren't any real equivalents to the scene shops, prop shops and special crafts which are part of the everyday working scene in Hollywood. They just don't exist in New York, so you have to dig in unusual places. We had many people who came from kind of "underground" sources—opera prop shops and places like that—who contributed significantly in all sorts of peculiar ways—creating flying monkey motorbikes, mechanical musicians and things like that.

Most of the people working on fantasy props were people with whom I had worked before in one way or another. The fantasy prop shop was run by an extraordinary gentleman named Eoin Sprott, who had been a leading propmaker for Broadway theatre and had then gone to Canada a few years ago as a film producer for Canadian TV. While we were there working on "EQUUS", he had helped us by making a couple of props and had got his hands dirty again and rather enjoyed it, having been behind a desk for so long. When "THE WIZ" started out, it was by lucky accident that he and his wife were visiting New York on one of the most beautiful days of early spring. They had been wandering around for a weekend virtually in tears with homesickness, so I was fortunately able to induce him to come back and head the fantasy prop department.

Many of the ideas for "THE WIZ" that eventually showed up on the screen originated in some wonderful meetings in the early stages that included Sidney Lumet, screenwriter Joel Schumacher, producer Rob Cohen, composer/lyricist Charlie Smalls, musical director Quincy Jones, choreographer Louis Johnson, and myself. Those sessions, during which we just sort of threw ideas back and forth, trying to find contemporary urban equivalents of the original book, were hugely enjoyable and very productive. As a result, everybody was very loose on the set and it was a very

(LEFT) Construction underway on the huge "Sweatshop" set, stronghold of Evillene, wicked witch of "THE WIZ". (RIGHT) On the vast main sound stage of the Astoria Studios, where most of "THE WIZ" was filmed, stands a set which duplicates in fanciful terms the facade of the New York Public Library. The doorway (as in the original) is flanked by two lions, one of which comes to life and joins Dorothy in her quest for the Wizard of Oz.



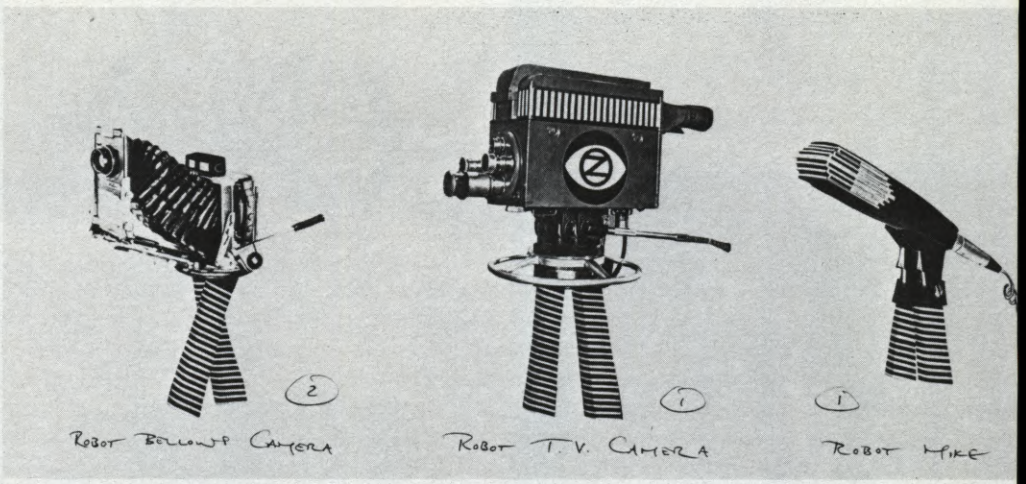
pleasurable way to start such a project.

As a result of our pre-production meetings, several ideas we'd already formulated came in for change. For example, in our early thinking about the Munchkinland (graffiti) sequence that would introduce the fantasy part of the film, it had always been kind of assumed that the location would be a subway terminal, with the trains all covered in graffiti. But in considering another sequence where the Lion leaps over a deep ditch carrying each of the others on his back, the ditch sort of suggested the subway. So that situation became the subway sequence, which meant that we had to look elsewhere for the graffiti location. We started to think about what kind of area would acceptably have children and graffiti in it, and we ended up with a kind of fantasy playground that had huge play objects in the form of giant numerals.

We had decided that the Munchkins would be all in blue but Baum describes the Inept Witch who protects them as a sort of violet-purple creature, so I did a mixture of those two colorings for the sequence. We also used a great deal of 3M reflective paint, which is the kind of paint used on many traffic signals.

I thought it would be fun to start the sequence as a kind of line drawing, so that when Dorothy arrives in this early frightening stage of her fantasy, you don't quite know what it is going to be. So all the graffiti (although it is done in coloring, but keyed into the blue background of Munchkinland) is outlined in this 3M reflective paint. The stuff theoretically doesn't spray, but our fantastic scenic artists found a way to make it spray, and it was sprayed into the graffiti on the set and on the costumes of the Munchkins. At the beginning of the Munchkin sequence, everything starts out as a kind of silver-blue outline, and gradually the color fills in as Dorothy becomes accustomed to where she is and is better able to see.

As I said before, that sequence was shot entirely in the New York Pavilion of the World's Fair, although we did dress it up considerably. We built a completely new floor, both upstairs and down, and an entirely new perimeter of walls, with the set placed within those walls. That was so that we could paint our own graffiti background and test the reflective paint. The location itself basically wasn't a protected area. It was a somewhat derelict structure and difficult to guard, so everything, including the giant playground pieces, was built in the studio and carried to the location in the last stages. We then hit some bad weather, and since there were pick-up shots to be done, we took some pieces back to the studio and shot the pickups there, as well as some of the more complex magic shots.



The robots in "THE WIZ", vastly different from the "STAR WARS" variety, are depicted as mobile media machines—bellows cameras, television cameras and microphones—which walk about in the Emerald City, recording the spirited antics of its glamorous inhabitants. The above sketch was executed quite literally in the final design.

There is also a quite remarkable matte shot that was done for the Munchkin sequence by Albert Whitlock, because the size of that building and the height of the tower above it were such that the amount of lighting equipment required would have used up the entire budget of the film. So Ossie lit the lower tower and Albert matted in the remainder, as well as the magic elevator effect that takes place within the set.

There are quite a number of matte shots in the film that are Albert's creations and we all worked together very closely indeed. I did sketches for each of the sequences that he was going to be involved with doing matte paintings for and he worked initially from those. But ultimately he started suggesting ideas of his own and there are two effects in the Emerald City arrival sequence that he came up with out of the blue which are quite extraordinary, and they are just notions right from the inner workings of Albert's mysterious mind.

He was with us a great deal of the time, and I wish we could have had him with us all the time, but because of the tight schedule, he had to rattle back and forth to his workshop in Hollywood, leaving his crew in New York to follow through, but it was a very close and enjoyable relationship.

There is a chase sequence in which the flying monkeys catch our heroes that was shot in Shea Stadium—again, with the use of the 3M material. In this case, we used it in tape form (it comes in various widths) and we dressed up all the columns and ramps and escalators with the material in order to give a more linear quality to the setting. This was one of the more solidly realistic of our locations and, since we were obliged to shoot in the daytime, we used the 3M material as a means of trying to pull it into the area of fantasy.

We also used Yankee Stadium to shoot a very short sequence showing the return to the Emerald City after the death of the Wicked Witch, when the flying monkeys drive our heroes back on the fronts of their motorbikes. Our "set" was an unused glass walkway that exists there. It was so extraordinary in its design that it was one of the few things that we had to do almost nothing to. We simply laid Formica mirror down on the floor of the entire area, so that the flying monkeys, the sky and the glass dome were all reflected in it. We also used a kind of parking ramp at Yankee Stadium to film a continuation of the journey from the glass bridge down to the rear entrance of the Emerald City.

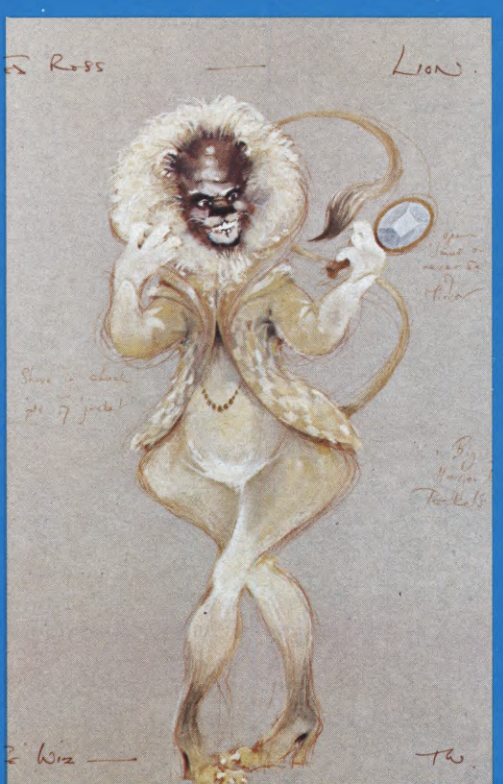
We shot in several subway stations, one of which was largely unused and could be sealed off for us. But other platform areas got fairly complicated, because there were crowds all around us anxious to get a glimpse of Diana Ross and Michael Jackson. We did a great deal of preparatory work in the subways, dressing and painting everything and laying very long walls of mirrors in order to get a kind of infinity reflection effect.

We also shot in an area under Union Square where four tunnels and a staircase converge in one corner and this forms the completion of the subway sequence, where all of our heroes escape the fierce chomping mechanical objects (trash cans and columns) that are pursuing them. The fake tile columns that tear loose and try to crush them have people inside to make these maneuvers possible, of course. To our surprise, when we finished shooting, the subway authorities

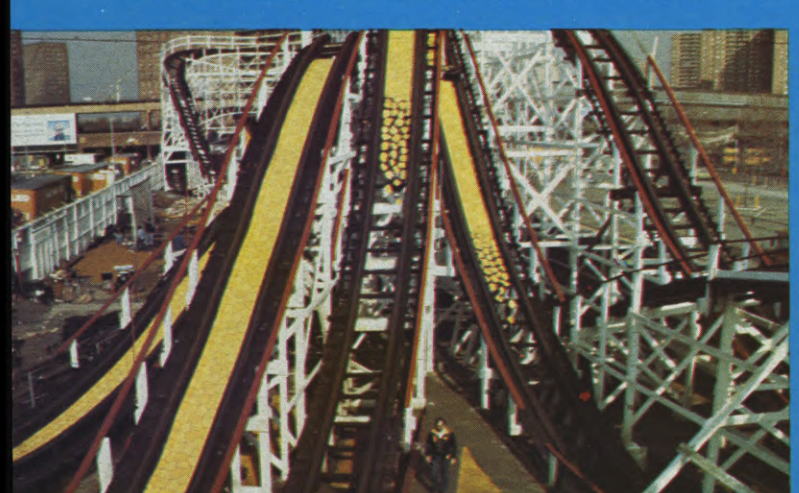
asked if they could keep them. They obviously saw them as being of possible advantage in their surveillance activities. Whether they are actually using them or not I don't know, but many naughty things go on in the dead of night in their subways. (I love the idea of being there, involved in some mysterious transaction, and suddenly seeing this column angle itself slightly towards you to get a better view.)

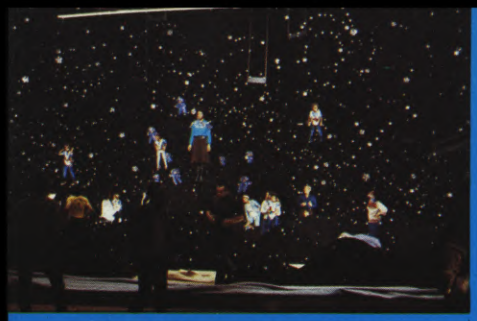
The strange, rather stylized posters in very strong colors that we used throughout the subway sequence were derived from designs conceived by Sidney Lumet's daughter, Amy (then 12) and my daughter, Emma (then 14). Sidney's

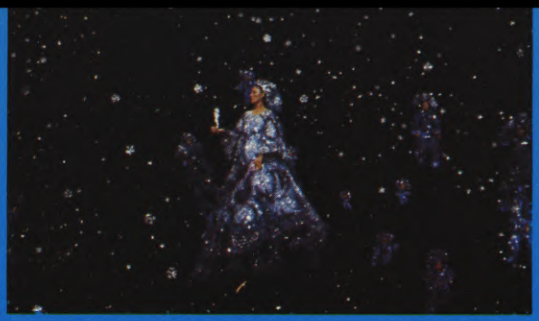
Walton's sketches for the principal characters include: (LEFT) The Scarecrow, an urban model made up of plastic trash bags stuffed with shredded paper, and (RIGHT) The wicked witch, Evillene, a fat, ugly doll-like creature, whose costume is studded with dozens of fascinating protuberances, including tiny toy rubber dogs which Walton discovered during a visit to a pet shop.



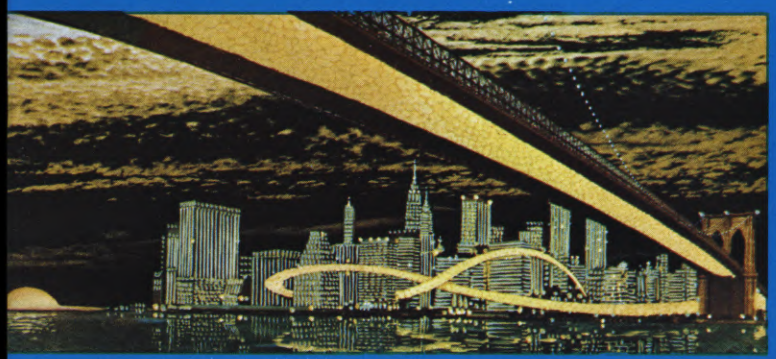
(LEFT) Costume sketch for Diana Ross in her role as Dorothy in "THE WIZ". (CENTER) The Lion, as designed by Walton, evolved as an elegant, high-style feline, rather than the scruffy klutz of previous incarnations. (RIGHT) The Tin Man resembles a combination of giant marionette and carnival automaton, who has been patched up with tin cans. (BELOW LEFT) Even the Giant Cyclone rollercoaster at Coney Island got a touch of the Yellow Brick Road. (RIGHT) Recreated facade of the New York Public Library, with stylized Yellow Cabs in front.







(LEFT) Rigging the set for the scene where Glinda, the good witch, arrives with her court of snowbabies. (CENTER) The fabulous Lena Horne, as Glinda, sparkles in a cinematic firmament, her gown atwinkle with hundreds of tiny grain-of-wheat lights. (RIGHT) Despite the intricacy of the costume, nothing detracts from those classic features. Perfectly cast in the role, Miss Horne jokingly says, "I got the part because Sidney [Lumet] is my son-in-law."



(ABOVE) Final sketch establishing the Emerald City for the "EASE ON DOWN" number—the rendering to serve as a guide for Albert Whitlock's matte painting of the scene. (RIGHT) An on-the-bridge sketch for the same musical number, showing five Chrysler Towers and the Coney Island Giant Cyclone in the background. This rendering also served as guide for a matte painting.

daughter did a very remarkable collage which, however, in her version, was all in brown. Since we needed ours to be in very brilliant colors, I'm afraid I took terrible liberties with her design. She felt that the sequence in the film should really have been changed to her coloring! A painter named Susan Freeman did a number of variations on her design, and my daughter did variations somewhat based on Amy's design. Their designs play a very valuable part in that sequence. They add a kind of naive, really scary quality.

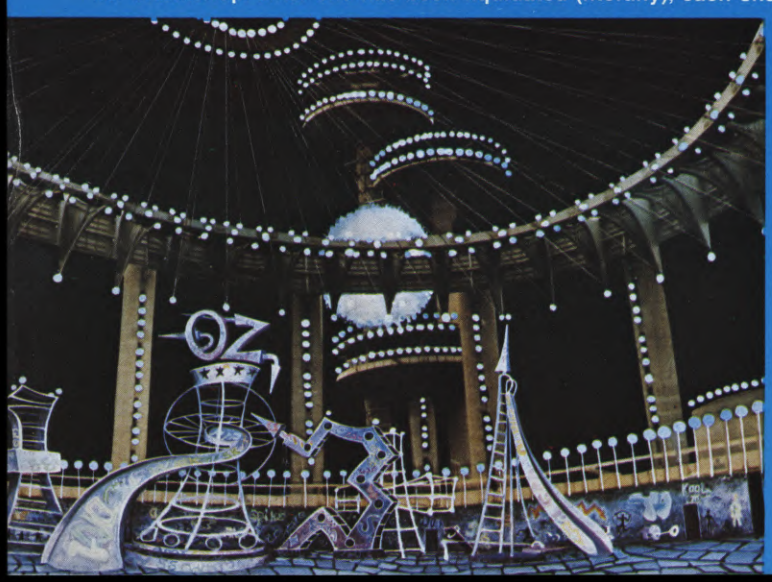
The prologue to the film is relatively naturalistic, although it is largely shot in a constructed studio set with rather controlled, muted color. Part of the prologue takes place in the street, with a snowstorm that was considerably enhanced by the magic of Albert Whitlock. In that street we painted a kind of naive mural that combines some of the elements which eventually turn up in the fantasy sequences of the film. Presiding over all this is a sort of Mother Nature figure that is suggestive of the figure of Glinda as she appears when Dorothy first conjures her up in her imagination.

Sidney later decided that he wanted to use that mural as the background for the film's titles, but by then we were no longer out in that location, so we had to make a little version of it in the studio, with mini-scale bricks and everything drastically reduced down. That was great fun.

The Wasteland sequence involved largely location shooting, with an enormous amount of support from matte work, and that led onto a kind of derelict lot where the urban trashbag Scarecrow is protecting a rather forlorn little patch of corn and goldenrod and weeds and things and being tormented by the crows.

That was a studio set, but because of the very cold, gritty, realistic nature of the derelict lot that it was, we again had to do something a bit extreme to force it to function within the framework of the fantasy—so I tried leaning everything and

(LEFT) Production Designer's sketch of Munchkinland, here interpreted as a graffiti playground. The sequence was actually shot in the former New York State Pavilion at the Flushing Meadow World's Fair site, which was considerably embellished by the film company. (RIGHT) Costume designs for two of Evillene's Winkies, who are portrayed (pre-liberation) as lumpy, clumsy enslaved creatures who toil in her sweatshop. After she has been liquidated (literally), each one unzips himself from the chrysalis and emerges fresh and graceful.



then leaving the windows open to the sky. It is the same technique that we used for the Public Library—and for the same reason—because the Public Library is substantial and earthbound, a weightily realistic structure.

As I said before, it was a great challenge to lend a fantasy quality to the harshly realistic elements of New York, but also enormously exciting to try to find a way to do it and make it acceptable to Sidney. He's really remarkable to work with, because he's one of the most organized people in the industry, and this is partly why "THE WIZ" could be made at such astonishing speed. It was a 12-week shoot, I believe, which for many films is not bad, but for a complex musical it's incredible.

That short schedule also put an extraordinary burden on the construction department because they had to erect 50-odd sets, strike them and set up new ones.

With the sets, one of the things I wanted to avoid, if possible, was frightening Sidney with the kind of rough sketches which I would be obliged to do because of the speed of the operation and the many sketches that would be required for all of the sequences. So just as a work technique, I ended up taking my location photographs and sort of pasting them up in an approximation of what we would be shooting and then placing acetate overlays onto the photographs and painting in the details we would be adding by scenic work and the application of the LIGHTFLEX.

This gave me a way to show him the genuine reality of a location, plus what would be necessary to bring it into the area of fantasy that we were hoping to reach. It seemed to be a much more secure way than doing full paintings, which also, of course, are slower to make. In some ways it was a rather tortured way to work, but it primitively approximated the nature of matte painting, which is why some of the mattes resulted from this style of working.

The Poppy sequence, as I mentioned before, was shot on location and we went to considerable lengths to dress the hell out of everything there. The alley we used was framed by two of the raciest of New York's blue movie theaters, so we dressed every part of them to the nines, completely redoing their marquees with our own designs, a kind of combination of poppies and lips. Everything was in reds and pinks and oranges, with a lot of neon.

There was an enormous neon advertisement for Poppy Love perfume which was belching pink perfumed smoke—sort of like the Camels Cigarettes sign that used to be in Times Square. The Poppy hookers, who are sort of nursery naughty, as it were, lure our heroes up into the sign, where they become intoxicated by the fumes. They go through a sort of stocking made of transparent stretch fabric, with neon-lit rings and lots of smoke.

That was quite a tricky thing technically, because in order to create a feeling of their being somewhat transported by the smoke and the poppy dust that had been thrown on them by the girls, we carved the floor of this erratically shaped tunnel out of foam rubber, so that when Dorothy and the Lion walk through, it is totally unstable. It's as if they are walking on air or clouds. There is no connection with the ground.

While the foam rubber floor helped give the characters a sort of floating quality, it also brought with it all kinds of snags, because if one of them had toppled and reached out for one of the neon circles, they might have received a nasty shock. To avoid that, all of the neon had to be protected with rings of vinyl, so that if they fell forward they would touch that rather than the neon itself.

When they emerge from the tunnel of Shocking Pink fabric with all the neon and lights bleeding through it, they are on a rooftop. The dawn starts to break and they all turn and get their first view of the Emerald City, which is one of those marvelous Albert Whitlock matte shots.

I had done a tremendous number of sketches and overlays for that Emerald City view, because we were looking for something that would not only be pleasant and amusing for New Yorkers, but also absolutely acceptable as a generalization of the skyline for people in other cities or countries. We ended up by trying to find a really corny postcard view (so that it would be as familiar as possible to as many people as possible) and then tried to give it a magical appearance—again, very much courtesy of Albert.

Our heroes then follow the Yellow Brick Road across the Brooklyn Bridge and go down through a hole in the middle of it, somehow, into our imagined entrance to the Emerald City—which is a giant bank vault built in the studio. They are now at the central core of the Emerald City, the plaza of the World Trade Center.

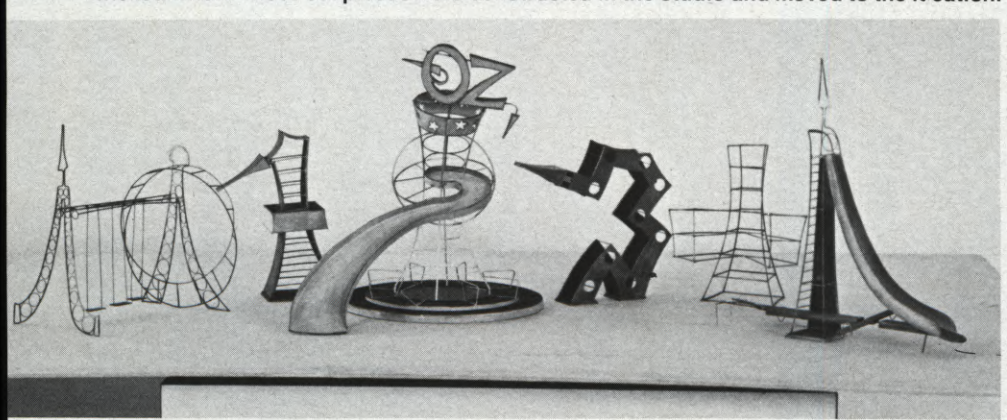
This is an area so mammoth and, in many ways, so magical that I had originally hoped it would almost work by itself, with perhaps just some kind of imaginative notion to link the two towers to create an area where the Wiz would be presiding over the whole city. I had also planned to put a giant brass sculptured Z in front of the sculptural globe in the center of the plaza to make a huge OZ sculpture, but I had hoped that with just the lighting and the enormous crowd and the brilliant colors the rest of it might work pretty much as is.

However, the area is so gigantic that, as the result of a lot of talk between us, we finally decided that the job of lighting it would be so mammoth that it really did need designed elements to add light support. So we started with an enormous illuminated ring around the central sculptural globe (which is actually a sunken seating area in the plaza) and we built a walkway with a translucent plexiglass surface that had to be lit from underneath with three separate colors. It was a tremendous undertaking. The mileage of cable was staggering.

Then within the plaza, we dressed the surrounding area with a large number of translucent jeweled pyramids, each of which had a revolving jewel on top. Gargantuan they were (although not appearing that large within the overwhelming plaza) and these too had to go through three color changes.

One day Charlie Smalls, the composer of the score, remarked that he thought it would be a great way to support the disco

Miniature models of the giant playground pieces for the Munchkins' graffiti city. They were designed vaguely in the shapes of numbers because the place is presided over by a bizarre numbers lady called "Miss One", who transfers to Dorothy's feet the silver slippers of the wicked witch. These set pieces were constructed in the studio and moved to the location.



feeling of the sequence if the black buildings that frame the silver towers were made to look like huge loudspeakers or amplifiers, so we picked up on that idea and made gigantic brass control knobs and voltmeters to dress the buildings. During an early visit by Universal brass to the studio where we were building these things, one of the visitors asked, "What are the swimming pools for?" He was referring to the knobs, which gives some idea of their scale.

We also constructed a 36-foot-long "Ozmobile", which was built from scratch on a bus chassis. We had a piece of good luck in that one of our scenic artists had been a car stylist in Detroit many years ago, so he got into the whole fantasy of the thing. When he finished his work on the Ozmobile, it was as if there wasn't anything he could do to top it, so he left the film. It was rather a shame.

We also made a gold piano about 24 feet long, which is played by Quincy Jones in the sequence. There were other things—like giant piles of jewels strewn about, which had to go through changes—and the final stretch of the Yellow Brick Road, that points toward the center of the plaza. That starts out as yellow vinyl, but evolves into a fully illuminated translucent piece by the time it ends as an arrow. In addition, we covered the tall lamp stanchions which surround the plaza with the 3M reflective material, so that each time the sequence went through a color change, Ossie could use his LIGHTFLEX to, as it were, "blow" the colors of the sequence into the plaza and make the stanchions change in concert with everything else. The reflective material was, I believe, rather torturous stuff to remove and caused a certain amount of dismay when our prop people had to take it off.

There were lots of peripheral problems to shooting in the plaza. One of them stemmed from the fact that in the original planning for the World Trade Center, a hotel was to have been built between the twin towers. It may still be built, but it isn't there yet and the gap between the towers, which leads directly onto the river, acts as a wind tunnel. Really staggering winds come roaring through there. The result was that while we were working, gigantic sheets of plywood were whirled 30 or 40 floors high and great sheets of Plexiglas were wrenched out during windstorms. The power of the wind was amazing.

Also, according to our contract with the World Trade Center, we were required to strike and store all of our scenic elements the minute shooting ended every night, which meant that those gigantic pyramids and rock piles and so on had to be moved under cover of the overhangs surrounding the buildings. Resetting them for the next night's shooting and then striking them at four or five in the morning when shooting ended was a very costly affair.

Tony Walton with Peter Shaffer, author/screenwriter of "EQUUS", shown on the set of that film, which was shot in Canada previous to "THE WIZ". "EQUUS", which represented an entirely different style and challenge, was also directed by Sidney Lumet and photographed by Ossie Morris.

Even so, the shooting was completed in only four nights, and I'm still not quite clear how that could be accomplished. The logistics were incredibly complicated. Just the project of organizing the 400 extras in their 1,200 costumes, plus getting all the robots and principal actors into their costumes, was a hair-raising undertaking. However, Sidney planned it like a military campaign to make sure that we would get out of there on time, even with unlucky weather. Had we run over, it would have been disastrous, because some sort of political visit was scheduled for the plaza and, had we been delayed, all our big knobs and other props would have had to be taken down and put up again.

After our heroes leave the Emerald City main area, they get into a crazy little elevator and travel up to the Wizard's territory (a studio set) where, as in Baum's original, there is a giant torsoless head with all kinds of smoke and flames and beams coming out of the eyes. That's followed by another studio set, which is an Emerald City Motel room, linked by one of Albert's matte paintings to a distortion of the Science Pavilion at the World's Fair.

From there the scene shifts to the Wicked Witch Evillene's territory, which we visualized as a giant sweatshop. It was a very eccentric set, an elaboration on an old conventional sweatshop, but because we were able to design it any way we wanted to, it had a certain amount of creativity in concept. The leading of the windows was cobwebbed and there were revolving fans in every window. There, again, we had to find some way to give it a texture of reality, so the shelves were filled with rubbish and bolts of material and the machinery was rusted and everything was covered with grime.

The costumes in that sequence were technically very interesting and fairly complex. The Winkie's, enchanted by Evillene, appear as gnarly little slave creatures at the beginning of the sequence. Then, when Evillene gets melted and dies, the Winkies unzip themselves from their heads right through their bodies (like coming out of the chrysalis) and emerge as young and fresh and free.

Evillene's costume is also interesting. She's a totally demented creature and an attempt was made to make her look evil and scary but, at the same time, sort of adorable—like a great doll. In the course of an excursion to a pet shop with my daughter, I came across a whole raft of rubber dog toys, strange little creatures that chomp and squeak. I bought a barrage of these and used them to cover Evillene's costume. There is an explosion of little things like that popping out of her costume and painted into it—like eruptions all over her.

Eoin Sprott, our fantasy props expert whom I mentioned before, worked closely with the special effects people at Astoria Studios to make it possible for the pressing machine to squash the Tin Man flat in one continuous shot without a cut.

(LEFT) The Winkies toiling away in Evillene's sweatshop, prior to their liberation. (RIGHT) Freed from the thrall of the wicked witch, after she has been dissolved by the sprinkler system, the Winkies emerge from their grotesque cocoons and dance for joy. (BELOW) A section of Eighth Avenue in the heart of Manhattan was completely redressed and colorfully lighted to represent Hooker Heaven. The alley was framed by two of New York's raciest blue movie theaters, the marquees of which were decorated with giant poppies and lips.

(LEFT) The Yellow Brick Road lead through several of New York's subway terminals, which were colorfully refurbished for the shooting. (CENTER) At the "magic hour", even a half-demolished building took on an enchanted glow. (RIGHT) An unused glass walkway at Yankee Stadium needed only the laying of Formica mirror on the floor to convert it to a fantasy set. (BELOW) The Tin Man is squashed "Bugs Bunny flat" by a giant clothes pressing machine during a continuous take, courtesy of special effects experts Eoin Strott and Al Griswold.

It just squashes him Bugs Bunny flat and you see it happen right before your eyes. Special effects expert Al Griswold helped him with this, as well as with the cutting table (a sort of magic show device) used to chop up the Scarecrow. Al was responsible for many effects of all sorts in the movie and all of them worked the first time.

Our special effects in "THE WIZ" are old-fashioned, in the best sense of the term. Fairly early on it was decided not to go into a kind of electronic wizardry (*a la* "STAR WARS"), mainly because of the strengths of the original story, which are rather pure and naive. As a result, Albert Whitlock's work and the special effects created by our technicians all have a kind of classic, old-fashioned quality which, I think, is very much in keeping with the nature of the project.

The flying monkeys are fascinating creatures. They start out as kind of motorbike centaurs, but with the death of Evillene they are freed and they can ride their bikes in a conventional position. This allows them to carry our heroes on the handlebars back to Emerald City. Our heroes go through the rear entrance, which is a sort of backstage area, and there they see all the rather pathetic workings of the Wizard's operation. The big head is lying on its side and they realize they've been had. We then go through an explanation (which stems from the Baum original) of how he got there and why he took over as the Wizard of Oz. That's Richard Pryor's sequence.

Then our heroes express their disappointment in his inability to give them the things they are missing. But Dorothy explains that they've shown these qualities all along and sings to them *"Believe in Yourself"*. As she sings, their environment, which has been getting darker and darker, dissolves behind her and becomes snow. We now see Lena Horne, as Glinda, with her court of snowbabies and she sings the same song to Dorothy.

Glinda's costume had some curiosities about it. It was created by the amazing Barbara Matera, who made all the principals' costumes. Barbara is an exceptionally creative costumer who, when she was still working in England, made many of the costumes on the first really

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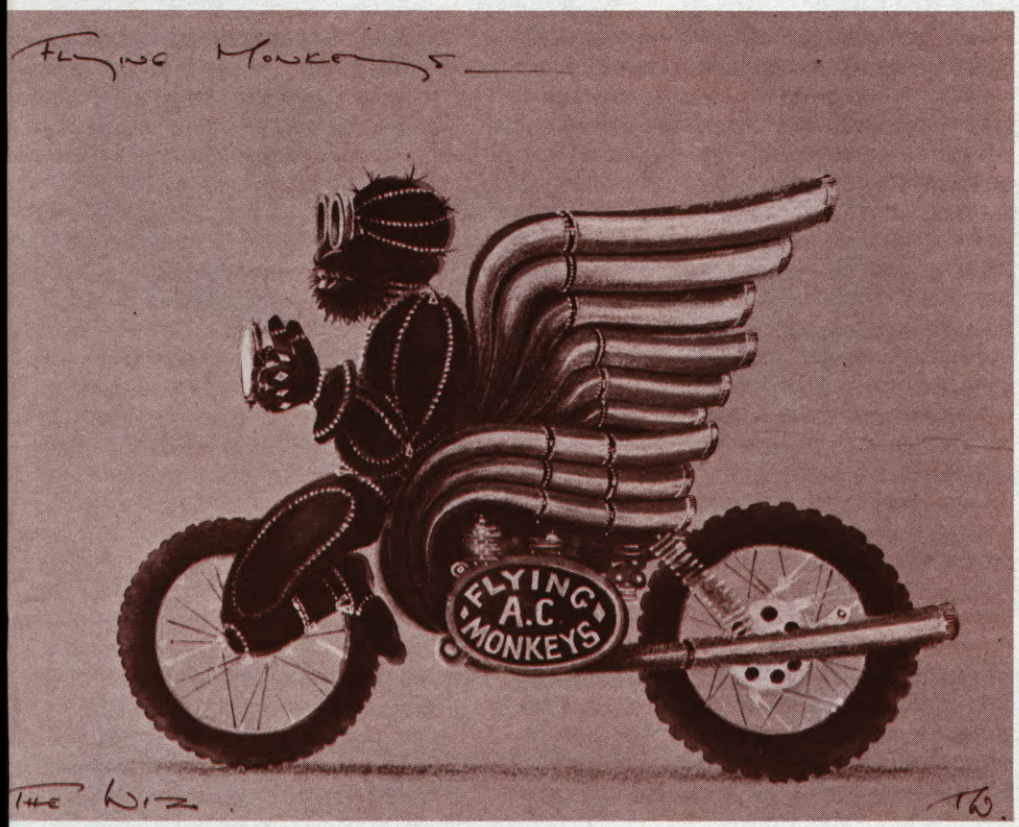
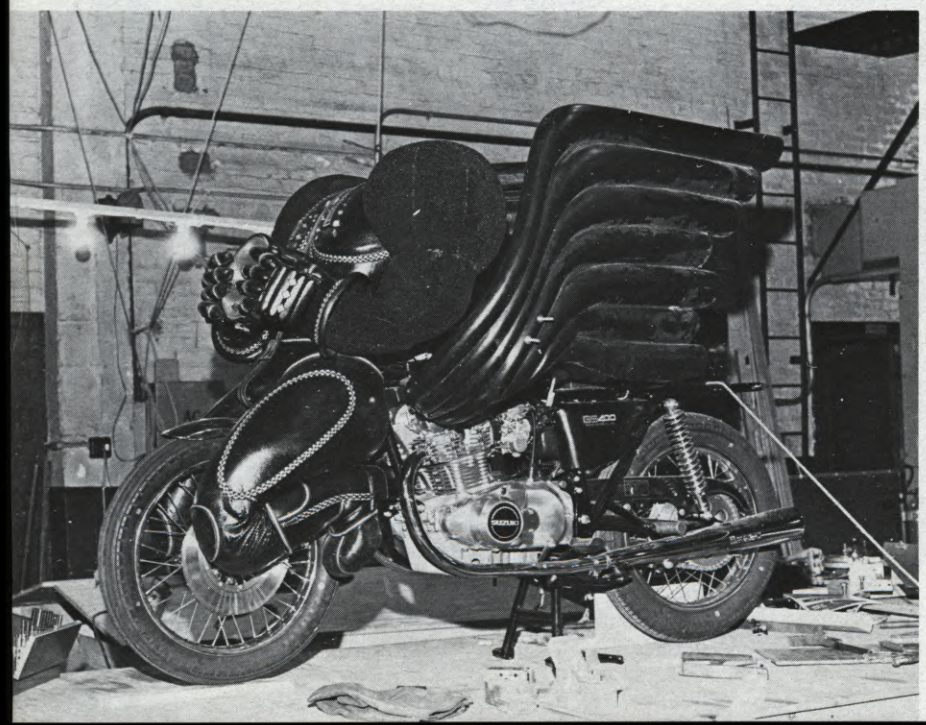


The famed Flying Monkeys of the original book were interpreted by Tony Walton in "THE WIZ" (ABOVE) as strange and fascinating centaur-like creatures, half-motorbike/half-simian. (BELOW) One of the motorbikes in the prop shop, showing the dummy figure up front. (RIGHT) After being liberated from Evillene, the monkeys are freed from their vehicles and strut about as caricatures of motorbike freaks, heavy with chains, zippers and leather.



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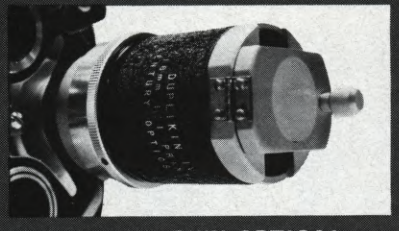

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with blue from the LIGHTFLEX.

During production, the special reflecting lamp system used for illuminating the 3M material was informally referred to as "Tin Man", simply because I had initially used a Tin Man model in order to demonstrate it, and everyone started calling it that. At present, we are trying to think of a proper name for it and we might even use a reversal of LIGHTFLEX—something like FLEXLIGHT (which I'll use henceforth as a convenient way of referring to it for this article).

At any rate, it made possible a wide variety of visual tricks that were extremely effective, especially when used in combination with the LIGHTFLEX. In fact, virtually without any set illumination, one could film a whole dance number just by using the LIGHTFLEX and the FLEXLIGHT, if you will, beamed onto the 3M material. We found also that in a set having a background 200 feet away, dancers could come up to within five or six feet of the camera, with one getting equal exposure on the background and the foreground. A 14mm lens on the camera lent enormous scope to such a scene.

One, therefore, was not limited in any way, and it gave Sidney Lumet a tremendous range to think in fantasy terms within a world which, as I said, was hard: New York. The hardness of the reality of New York was totally softened and minimized by the visual effects which we were able to create with the LIGHTFLEX and FLEXLIGHT units.

I shall always remember the first night that Sidney was exposed to the special effect of changing the colors of all the emeralds and lamposts. He had not seen it before and they had kept it as a surprise for him. He went up to the top of the rostrum and they told him to look through the lens. He did, and when the color overlay started, he said, "I've seen that before." They said, "Well, wait." Then they started turning the handles of the FLEXLIGHT unit and all the lamposts and emeralds started to change color at the same time. Sidney put his mouth to the loudspeaker and said that he just could not believe his bloody eyes anymore. He was absolutely thrilled.

I should like to make it quite clear, in case any confusion exists, that I have been talking about two devices that are entirely different and separate, although both are mounted side-by-side on the front of the camera.

The LIGHTFLEX (evolved from the original COLORFLEX) is a device that

Continued on Page 1125

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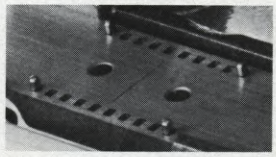

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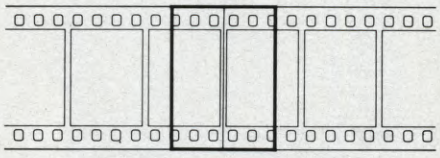
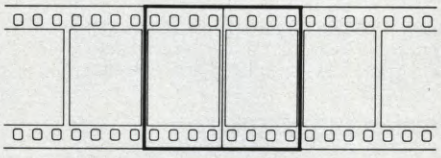


Old: tape edges visible on screen



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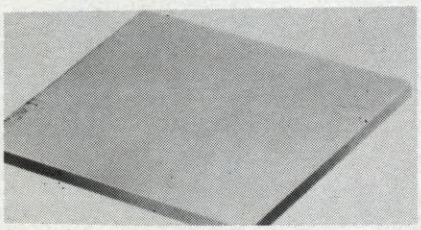

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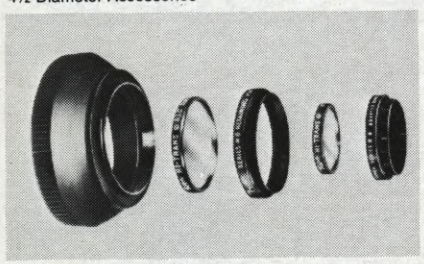
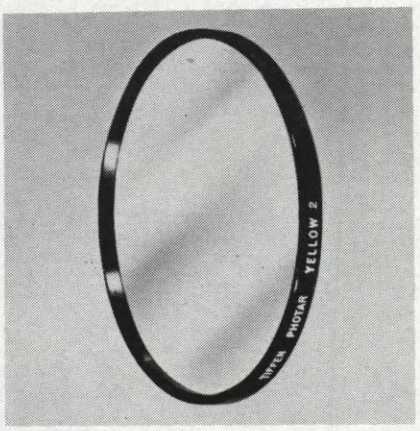


Adapter Rings



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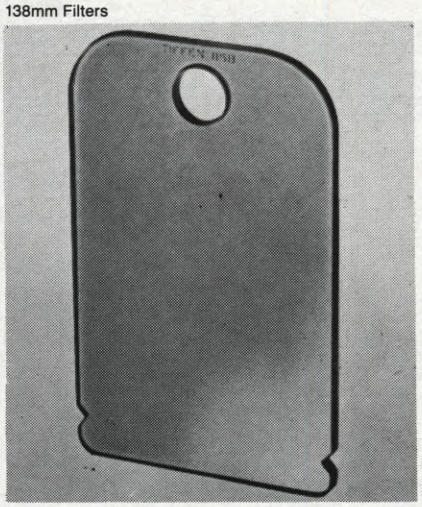

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Continued from Page 1105

he has nothing inside, just a hollow, heartless huckster.

The Tinman decides to join Dorothy and the Scarecrow in the hope that the Wiz will give him a heart.

Their route takes them down Fifth Avenue, past the vast 42nd St. Library with its monumental stone lions flanking the front steps. To their amazement, one of the lions watches them go past. He emerges from the stone, roars and struts about frightening the pigeons. But when he threatens Toto, Dorothy comes to the rescue and finds out that the king of the jungle is really the king of the cowards.

He, too, decides to tag along in the hope of finding some courage.

But the Yellow Brick Road leads them down into the subterranean world of the subway where they are attacked by an old subway peddler with his ominous jingle-jangle paper dolls that bob and dance, by his mechanical toys that grow into huge, accordion-bodied monsters, by vicious vending machines that shoot sticks of gum like bullets. In a fierce battle it is the Lion who saves them all.

They escape, only to find themselves in Poppy Street, where they are confronted by a phalanx of poppy doll gorgeous hookers who are into smoke rings of a certain white powder, completely drugging Dorothy and the Lion. The Scarecrow and the Tinman devise a plan and rescue their two delirious cronies, leading them to a rooftop from which they watch the sun rise over the Emerald City.

It is only the sight of Dorothy's silver slippers that gains them admittance and the favor of an audience with the Wiz, who asks, "What's in it for me . . .?" He wants the slippers, but Miss One has told Dorothy not to take them off until she gets home. Taking another tack, the Wiz says he will grant their requests if they kill Evillene, the Wicked Witch of the North.

They retire for the night to the Emerald City Motel and put their heads together to plan their strategy. "Four heads . . . even when one is straw . . . are better than one. . . ."

Evillene, however, is one step ahead of them. Ruling brutally over her slaves, the Winkies, she parades up and down her Sweatshop warning, "Don't you bring me no bad news!", knowing full well all her plans to stop Dorothy (the subway, the crows, the peddler) have failed. As a last resort. she calls in the Flying Monkeys, satyr-like creatures, half monkey/half motorcycle, combining the grace and charm of a Hell's Angel gang.

Dorothy and her friends encounter the Flying Monkeys in the passages and weird ramps of another subterranean

world (Shea Stadium). The battle rages on the roof and even on the infield. Finally, they are captured and carried to Evillene, who demands the return of the slippers taken from her evil sister. When Evillene threatens to roast Toto if she doesn't comply, Dorothy pulls a lever marked "In Case of Fire".

Sprinklers go off all over the ceiling of the Sweat Shop. Evillene screams that she is allergic to water, and melts into the floor boards. The water cleans up her whole filthy gang, the Winkies, the gypsy taxi drivers, the hookers, the Crows and the Flying Monkeys, ushering in a "Brand New Day".

Dorothy and friends return rapidly to the Emerald City, using shortcuts indicated by Evillene's reformed henchmen, to arrive at the unguarded backdoor which opens into the tacky backstage dressing room of the Wiz, strewn with theatrical paraphernalia and magic-act gear. It dawns on them that they have been tricked by the Wiz's performance. They find an ordinary man napping on a narrow cot and confront him with the truth. He is a failed politician from Atlantic City named Herman Smith, who floated away over the boardwalk in a hot-air balloon on the Fourth of July in an attempt to win votes for his election campaign for dog-catcher.

When Herman landed by mistake in Oz, they proclaimed him a Wizard, and, well, he needed a job.

He begs Dorothy and her friends not to leave him, for he is lonely and living in fear that his deceit will be discovered.

The group is crushed and disillusioned. Dorothy admonishes her friends to believe in themselves. They don't need the Wiz because during their adventures the Lion has proven that he has courage, the Tinman that he has compassion, and the Scarecrow that he has a fantastic intellect. But how will Dorothy and Toto get home?

Snowflakes and shimmering light magically appear announcing the arrival of Glinda, Good Witch of the South, in the dressing room of the Wiz.

Dorothy asks her help and Glinda tells her that what she has been searching for she can find inside her, where it has been all the time. "If we know ourselves, we are always home . . . anywhere."

"Believe that you can go home . . . and you'll be there."

Dorothy clicks her heels three times, tearfully bidding farewell to her friends. As she sings "Home", the final song, images of Oz merge with those from home, and all that she knows. With the magic clicks of her silver slippers she arrives back on her block, back in a loving world—back home. ■

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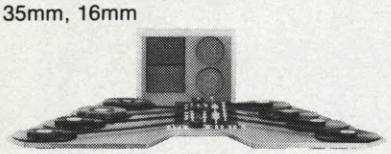

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MUNCHKINS AND WINKIES
Continued from Page 1117

lucky show I did over there—so our association went way back.

The sketch for the costume was fairly complicated and, in trying to translate it, she called on a lot of her experience in ballet. She made the undercostuming a sort of tie-dyed affair, ranging through all kinds of blue, violet and purple colorings. Then she followed the pattern of the tie-dyeing with dyed frilling, like a ballet tutu, but in crazy patterns going through all the shades of the tie-dye. Into that we laid literally hundreds and hundreds of tiny grain-of-wheat lights, tinted and stained in various blues and violets. Her whole costume is alive and twinkling; she's a force of light. It sounds very busy—and it really is—but one of the things I tried to do was make sure that no matter how much magic went into the costume itself, Lena Horne's face would be completely untouched by anything. It comes through as its glorious self, without benefit of any magic makeup. It's unbeatable and she's really startling in the sequence. I think that this is possibly the first time she's really burst through on the screen.

This is followed by the sequence in which Dorothy clicks her heels three times and sings *"Home"*. A sort of memory of her journey flows past her without color, as she sees the people she's bumped into flowing away and gradually the characters in the background, Aunt Em and Uncle Henry, start to come into color. That enormously complicated sequence is a mixture of the magic of Ossie and Albert and the special effects people. It was filmed with Diana Ross against a blue screen and the other figures were shot separately in a darkened space, with a difficult camera rig that traveled through them as each one was momentarily lit individually.

Being a part of the magic of creating the film version of "THE WIZ" was a stimulating experience. There were many people who worked on various aspects of the design and most of them were outstanding—staggeringly supportive and full of ideas, so that although I get credit for Production and Costume Design, I feel that it should be shared totally with an enormous number of people. ■

(ABOUT THE AUTHOR: Tony Walton, production and costume designer for "THE WIZ", is equally at home designing for the theatre or for motion pictures. He is perhaps the last of a lost breed of designers who create both settings and costumes simultaneously.

His first Academy Award nomination was for "MARY POPPINS", his first film work. More recently he received the same accolade for his work on Sidney Lumet's "MURDER ON THE ORIENT EXPRESS". His settings for Bob

Fosse's Broadway smash, "PIPPIN", earned him the coveted Tony award as well as the New York Critics' Drama Desk Award. Tony nominations also marked his work on Mike Nichols' production of "THE APPLE TREE" and Fosse's recent Broadway hit, "CHICAGO".

Born in England in 1934, Walton designed innumerable productions for the London stage, including productions for Britain's National Theatre and Royal Opera House. He designed TV productions for the BBC and was set designer for the Emmy-award-winning Marlo Thomas special, "FREE TO BE . . . YOU AND ME".

Walton has had several one-man exhibitions of his designs in galleries in New York and London and has illustrated several books. His film credits, in addition to "MARY POPPINS" and "MURDER ON THE ORIENT EXPRESS", include Richard Lester's "A FUNNY THING HAPPENED ON THE WAY TO THE FORUM" and "PETULIA"; Francois Truffaut's "FAHRENHEIT 451"; Ken Russell's "THE BOY FRIEND"; and Lumet's "THE SEA GULL" and "EQUUS".

His many Broadway credits include "A FUNNY THING HAPPENED ON THE WAY TO THE FORUM", the Sammy Davis musical, "GOLDEN BOY", Neil Simon's "THE GOOD DOCTOR", and Mike Nichols' all-star production of "UNCLE VANYA", which featured George C. Scott, Nicole Williamson, Lillian Gish and Julie Christie.

Last season, Walton provided the stark setting for Nichols' critically acclaimed production of "STREAMERS" and, in a very different vein, he created the elaborately outrageous decor for "BETTE MIDLER'S CLAMS ON THE HALFSHELL REVIEW", and Liza Minnelli's (current sold-out musical, "THE ACT".)

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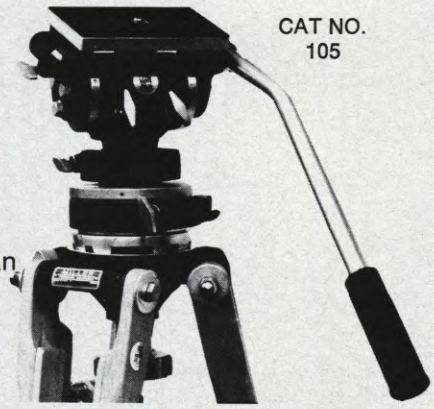

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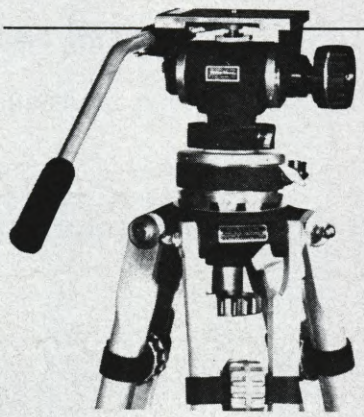

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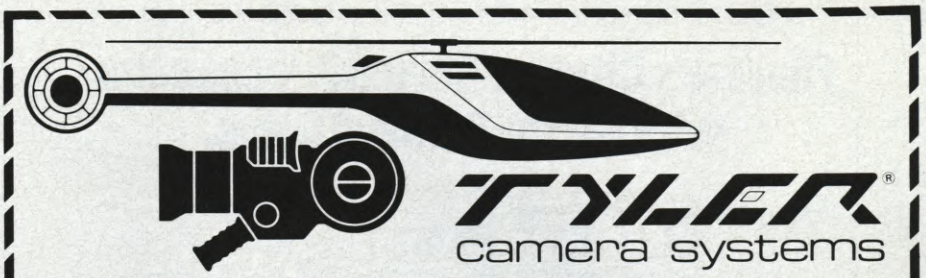
shines colored or white light back through the camera lens onto the films—a sort of in-camera flashing unit.

What we have chosen to call FLEXLIGHT, on the other hand, shines light toward a subject in the set covered with 3M reflective material, just as a front-projection light source does. In order to produce as high a gain as front projection, however, the two lamp units (each containing two light bulbs) would ideally have to be placed precisely in front of the lens. Obviously this isn't possible, but because the LIGHTFLEX unit diminishes in width at the bottom, we were able to bring the two FLEXLIGHT lamp units within four inches of the lens on either side, which resulted in very good reflectivity.

The effect is quite controllable, because you can angle the lamp units and also the bulbs within those units. On an extreme wide angle 14mm lens set-up, such as at the World Trade Center, for example, the left-hand bulb and the right-hand bulb farthest out on the two lamp units would illuminate the right and left extremes of the set—totalling about one-third of the frame area. The left and right bulbs closer to the lens would be directed to cover the innermost two-thirds of the frame. This meant that you could have an even coverage of light over the entire background.

One problem they had on "THE WIZ" was that they wanted to have a rainbow appear during a rain sequence, and when I arrived on the set they were experimenting with prisms and all sorts of ideas. Of course, the unique thing about the LIGHTFLEX system is that it includes a filter tray into which you can put any cut-out or matte-in sections that you wish to color. The minute I heard that they were after a rainbow effect, I said that the easiest way to achieve it would be to literally, and very accurately, cut out a rainbow on the filter tray. We did that and then blacked out all the light except that which would be shining through the rainbow. Then we made a test in the studio, starting the rain against a dark background, obviously simulating what was going to happen within the sequence. By tracking through the rain, one could slowly bring the rainbow up on the dimmer and it gradually appeared, creating this beautiful effect of a rainbow coming through the rain. Everyone was so excited about this that they decided to make many different cut-outs of rainbows—diagonals, verticals and whatever—so that they could intercut during the sequence and make use of the



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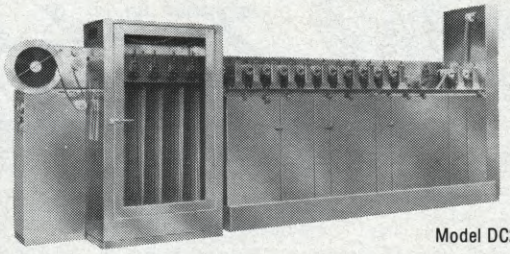

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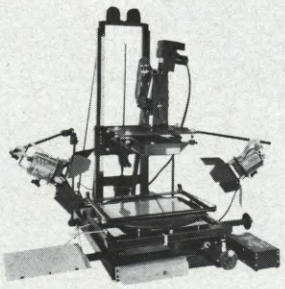

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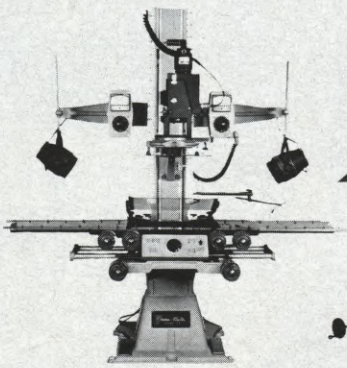

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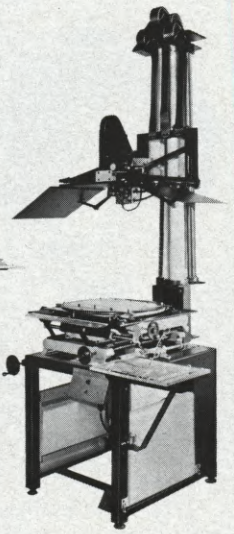

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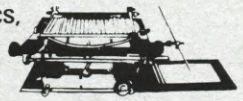

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rainbow in every shot.

The successful realization of an effect like the rainbow suggests that LIGHTFLEX presents a lot of opportunities for creativity aside from simple color overlays. One idea sparks off another, especially when you have people as creative as Ossie and Sidney and the art directors on "THE WIZ". I'm sure that from that rainbow came other effects which I haven't seen, because I wasn't present throughout the entire filming. But the system offered total control. It was almost like an artist's palette—without having to worry about opticals. They could shoot directly onto film any effect that they required, simply by reflecting it through the filter tray.

LIGHTFLEX evolved from my discovery of the principle of color overlaying or, as I call it, "filtering by reflection". Since "YOUNG WINSTON", on which I started off with a very crude piece of equipment that was designed within six weeks, the apparatus has gone through various stages. I found that the most important thing was to reduce the unit in size. This has been done in several steps. One important fact that became evident along the way was that if one uses a 45° optical flat for reflection in front of the lens, when you start getting into the use of wide angle lenses—especially the 14mm—you find that your filter tray becomes enormous. In fact, on the 14mm lens, we worked it out that it would have to be almost 2½ feet square, which was an absolute impossibility. I found that by using a very slight curve within the reflector, it anamorphosized the filter tray—which was the first stage in reducing it and, consequently, the size of the unit.

But I still had a problem, because while I had reduced the depth of the unit, I kept finding that as one got to the bottom of the reflected image, due to the circumstances of distance, it began to narrow off. The image would be the correct width at the top where it touched the filter tray, but narrower at the bottom, and in order to get the width, I was making the units wider and wider.

By constant experimentation I discovered that if one has a curve on the sides, that curve reflected by a curved surface becomes a straight line. So I found that by adding just one inch to the sides, I was covering the whole screen area from top to bottom with a perfect format of the Academy size that we were actually making the units for. Again, I was reducing the size of the unit considerably—not only in depth, but in width—which was a major step forward and produced the first 14mm unit for the Panaflex camera. It virtually meant that it was so reasonably light that it could be hand-held, and one

thing that Ossie did want was a hand-held unit. We managed to do away with all the additional equipment (which included the basic risers and base plates) and literally put on bars, so that it would clip onto the Panavision-adapted Arriflex and could be easily hand-held. I believe that in the rain sequences and the working out of a lot of trick effects they used it extensively. It was a great advantage to have the freedom of using hand-held equipment.

Going back several years, one of the attributes of the original COLORFLEX that excited me was the possibility of using white light as a kind of in-camera flashing element to increase exposure and fill shadow areas. With the help of Technicolor, I found that conventional pre- and post-flashing added only about a quarter of a stop of extra exposure. But by using white light in the COLORFLEX system (which I demonstrated to the B.S.C. about six months after "YOUNG WINSTON"), I was achieving about a full extra stop.

However, I found that white light will fog very easily. Quite by accident I was experimenting with candlelight and I thought about adding white light to it. But I knew that if I did, an enormous amount of correction would be needed in the laboratory, because it would go very red. Once they start putting corrective cyan filters in, your mid-range printer light is going to drop considerably, due to the loss of light, in printing your negative onto positive stock. Having found color overlays very interesting as an artistic device, I began to wonder if it might not be possible to use them in a corrective form. With that in mind, I managed to get a piece of cyan filter from Lee Filters.

I should like to point out here that it was not a matter of simply putting in a corrective cyan filter of rather low density, as one would do in printing. The principle is quite different; one is actually going through a process of illuminating the filter and then reflecting it through the camera lens. So this means going to a much denser filter in order to produce the correct color by reflection within the unit. I managed to get what I thought was the correct density of cyan filter and overlayed it during the shooting of the candlelight scene. I was astounded to find that I had wound up with a pure negative that needed no color correction in the laboratory. Another exciting discovery was that it extended the range of the film. Now I am finding that by using color corrective overlays, I can extend the range of the film by 1½ to 2 stops, and this has been verified by Technicolor in London. At the moment we are going much more into detail in analyzing this phenomenon, but I

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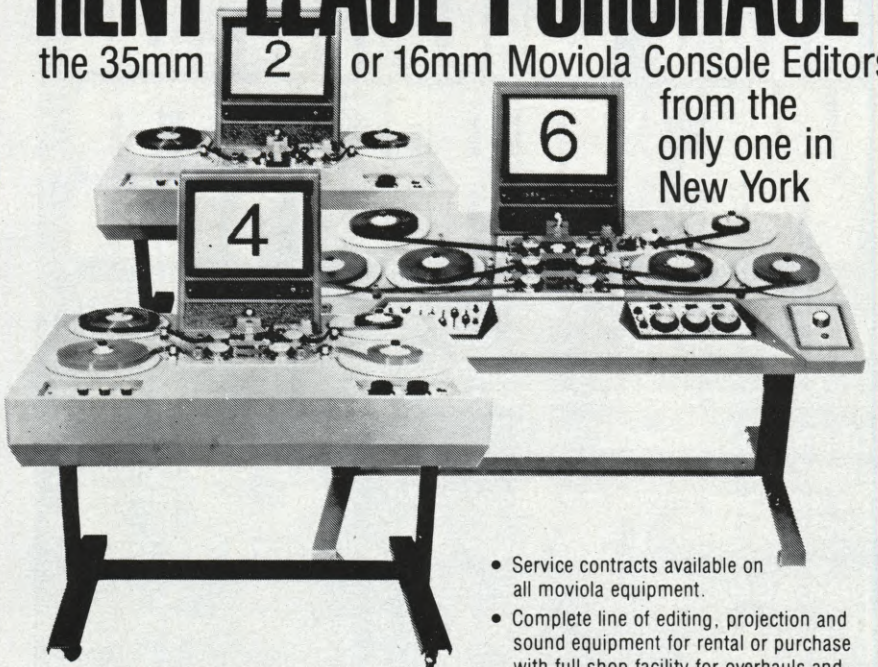

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am actually extending the range of the Eastman 5247 stock by an additional two stops and getting some very exciting results.

I feel that this breakthrough could have important applications to interior photography under natural light conditions. I have always felt that it is a great shame that the moment we get into a natural location, we immediately destroy the natural light by putting up our rakes and lamps in order to recreate the effect we saw by natural light.

I found that by measuring the color temperature within a room it is fairly obvious that one is going into blue by reflected light. I started doing experimentation within a room where one was taking the key light at a window (f/5.6, for example) and I found that I could actually get a balanced negative, and correct it at the same time, by using a color corrective filter, extending the range from f/5.6 to f/1.4. Not only does it produce a color negative with perfect balance, but it has such a natural "un-lit" look.

Now, I am not saying that we are going to eliminate studio lighting totally; this is not true. What one does do is get more beautiful results by using very small lamps in order to create the style of photography that one requires. A natural-light, well-balanced interior looks very beautiful, but it isn't good for every style of production. The creative result is still achieved in terms of the mood and atmosphere that the cinematographer lends to the film.

I do feel that LIGHTFLEX (with its name changed from COLORFLEX, for obvious reasons) will help the cinematographer enter into new and exciting areas of photography, by making it possible to color correct and extend the range of the film in order to produce visually almost what one sees with the eye—and this can be done without forced developing or getting into any unnatural processes in the laboratory.

I cannot express my thanks and admiration enough to Jim Contner, the camera operator, and his focus operator, Hank Muller, who made the use of my equipment on "THE WIZ" so successful. The amount of extra work involved for them to operate and look after Ossie's requirements they took in stride and, in fact, I knew from our first meeting that I could leave the units in their hands with total confidence. One could not wish for a finer crew. ■

(EDITOR'S NOTE: The LIGHTFLEX system is protected by United States patents 3827071 and 393852, United Kingdom patents 1358079 and 1452523, and other patents in various parts of the world. Patents on the FLEXLIGHT system are pending.)

which covered the screen completely, thus establishing a feeling of shooting into the rainbow—an illusion which one didn't get from the long shot. The long shot had the pattern of the rainbow across the top of the frame, but the close shots had the effect covering the screen.

QUESTION: Do you feel that the Lightflex can be used to create other such specific effects?

MORRIS: Yes, I firmly believe that because the Lightflex is so flexible and adaptable it could be applied to many other photographic effects, the advantage being that the material can be seen the very next day and there is no long delay while a special effects department works on it. For me that is a great plus, because occasionally perhaps one doesn't hit the density precisely or the style is not quite correct. In such a case you have the chance to go back and do it over again immediately while the set is still standing—whereas, if the color is overlayed at a much later date, there is no way one can change the concept nearly as well as one can by using the Lightflex.

QUESTION: Were there any other visual effects of a similar nature that you wanted to achieve, and were able to achieve, in "THE WIZ", using this method?

MORRIS: Yes. In the film you will see fantastic sunrises, where we have injected additional color to enhance the fairy tale nature of the story—which, after all, was the most important element in the making of the movie. We could never forget that we were visualizing a fairy tale rather than something that was real. We were able to enhance effects that could just barely be suggested on the stage by doubling up, as it were, with the Lightflex. I cannot see any limit to the use of this system in specific instances. I don't say that it will work on every movie, but there must be a lot of movies being made and stories being told these days where this system could do nothing but good in terms of the visual concept.

QUESTION: Do you think it could be applied in any measure to a film with a contemporary story line, or should it be confined to stories that have an element of fantasy or unreality about them?

MORRIS: Well, I think there is no limit to its use, but if you're talking about a

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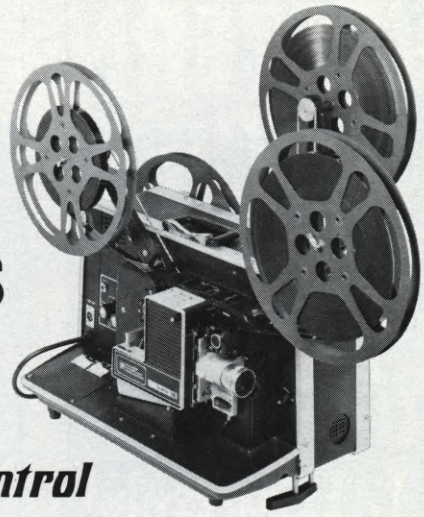

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contemporary subject, I suppose the best example I can give where the Lightflex must surely help would be a disco sequence. One could start with one certain color and, while the scene is taking place, go through a series of color changes—all in the original photography. Now, the commitment in such cases is total and cannot be changed, but I am much happier working that way than I would be having to wait for eight or ten weeks after the film is done before seeing such a color change created afterwards.

QUESTION: You spoke of looking through the viewfinder and deciding by eye that a certain saturation of colored light was what you wanted. For someone who perhaps doesn't have such an educated eye, is there any way of calibrating the color saturation so that it could be done by actual measurement?

MORRIS: For interior photography, where the exposure was fairly constant, I did not find it necessary to calibrate at all. I would merely look through as each setup was agreed with the director and assess the amount of Lightflex overlay and, in general terms, that remained a constant. Where it did become a problem was in shooting exteriors and I was determined, with Gerry's help, to lick this so that we were not held up in any shape or form by the Lightflex. Gerry came up with a very simple system of resolving this. He set up, on the side of the camera, a scale starting from stop T/2 and going through to T/22. All I had to do was assess the exposure of a particular shot, look through the camera and set the Lightflex overlay. Having done that, I then locked that into the scale on the side of the camera and from then on, no matter whether the sun was out, the sun was in, or whether we were in shadow or highlight, as long as that was locked in and the T-stop was set on the Lightflex to tally with the T-stop in the lens, the amount of overlay remained a constant. I think that was a great breakthrough on Gerry's part.

QUESTION: How does the use of the Lightflex obviate, say, in interior settings, using colored light or adding gelatines to the light sources?

MORRIS: No, I don't think it does. But what I think it does do is enhance and multiply the effect that they are creating. I find that colored gelatines used on their own tend to look what they are, in fact—colored light being put on a particular subject. But, if the same color is added to the Lightflex, in the most subtle way, I

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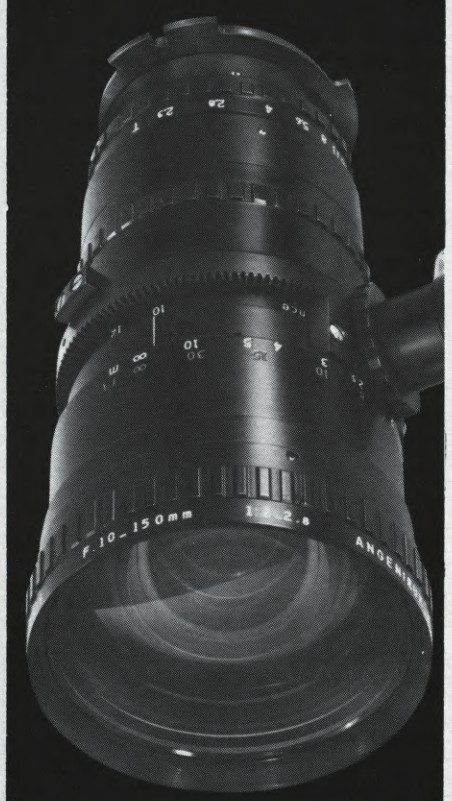

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find that one is not sure quite what is happening, except that it is not a normal image that one is seeing on the screen and I think that is what gives the visual its magic quality—which is exactly what we were looking for in the case of "THE WIZ".

QUESTION: You mentioned earlier that Tony Walton almost invariably had a certain color bias for each sequence. To what degree did you have to coordinate with him to make sure that your use of the Lightflex was complementary to this color bias?

MORRIS: I was given a set of water-colored sketches of Tony's concept of the film and I then set about finding the basic colors which appertained to each of his sketches. There was an extraordinary overall color present in each one of his sketches which was different for each picture sequence. I then set about finding gelatines which matched these colors. It wasn't easy, because a good designer will not be inhibited by manufacturers' limitations. He will not be inhibited by a particular range of colors that a gelatine manufacturer has put on the market. He wants to feel completely free to present the particular color that he sees in that particular set and I support him 100% on this. Therefore, the problem was to find the gelatines to match these particular colors and it took time, but we realized that, in the end, we were going to find them and, in fact, we did find all the colors we wanted—but it wasn't easy.

QUESTION: In turning the everyday streets of New York into a land of fantasy and giving them a look that other people never see, do you think you will encourage the others to see it in the same way as yourself?

MORRIS: I think I can best sum that up by relating the story of Turner, the great English landscape painter. Whilst sitting at his easel painting one of his familiar English Landscapes, he was approached by a lady who asked, "My man, that is a beautiful sunset you are painting, but it doesn't look a bit like that to me." To which the master replied, "Ah yes, but don't you wish it did." To me the thrill and fun of photography is in the interpretation and creativity of the subject matter. I try to see things freshly and differently on every picture that I photograph. To me that is the name of the game and that is what cinematography is all about: Striving to find new interpretations, new ideas, new color concepts, new balances, but always, always striving for freshness and sparkle, bearing in mind always, of course, that the script is

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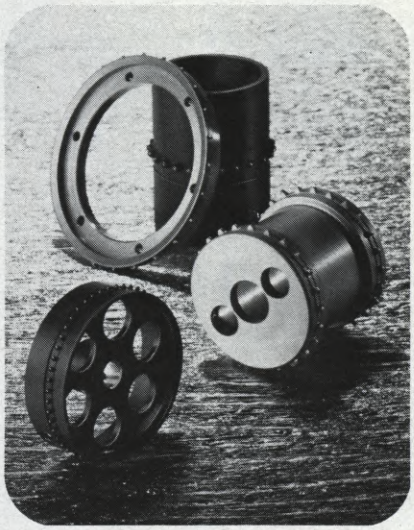

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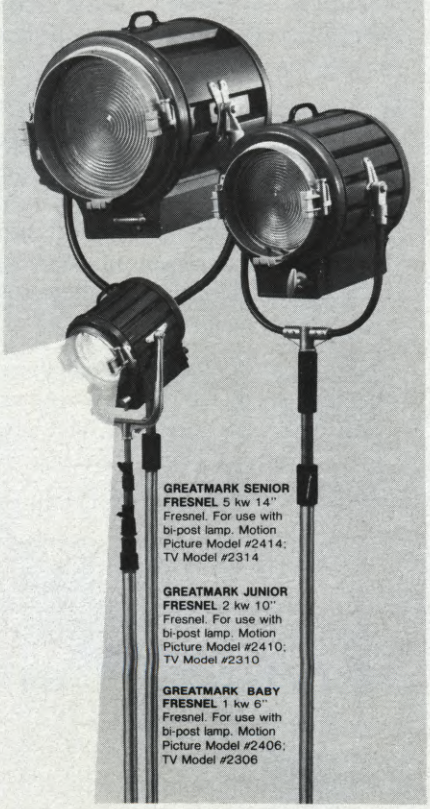

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the most important factor in the film.

QUESTION: Now, in terms of lighting units that were used—for example on that huge stage at Astoria, to cover such an area must have taken an extraordinary amount of light. Would you mind telling me what sorts of units you used mainly?

MORRIS: Before I answer that question, I would like to tell you that I have two fears which haunt me every time I photograph a movie. The first is that I only ever want to see one shadow—if I have to see a shadow at all. But ideally I would like to see no shadows and this result is very, very difficult to create. Therefore, having the good fortune to have very big sets, I was able to concentrate on a form of shadowless lighting which I desperately wanted to create. I was able to flood the top of the big sets (which were really interior/exterior sets) with a mass of soft light that really did become shadowless. It was as though I put a sky over the top of the set. I'm prepared to accept the fact that this is expensive in the initial outlay, but I firmly believe that once it is done, one can shoot very, very fast and thereby save on the ultimate expense. I'm convinced that in the end, when the set is completed, the outlay is no more expensive than if one had used a more conventional form of lighting. I think throughout the entire picture that the accent was on smaller mobile units—but many of them, thereby dissipating shadows as much as I possibly could. It wasn't always possible to eliminate them, but at least I feel that I diffused them to such an extent that only my professional contemporaries will notice them.

QUESTION: You referred to your diffused light source units (skypans with silk skirts around them) earlier, but would you mind describing them a bit more in detail for AMERICAN CINEMATOGRAPHER readers?

MORRIS: This is a system which, I believe, was developed in Europe—although I stand to be corrected on that. It consists of a 5K or 10K skypan which hangs down vertically from the top of the set. Around the perimeter of the light a silk skirt of about four feet in depth is placed and at the base of the skirt, a flat circular disk is located, so that no direct light hits the set. The light source hits the silk skirt and is diffused through the silk onto the set and the base plate is so situated that its shadow just hits the bottom of the skirt, thereby dissipating any form of direct light—and yet one gets the benefit of the brilliance of the inside of the skirt, as well as the outside of the

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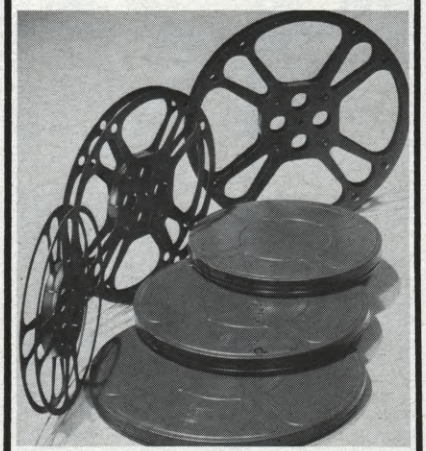

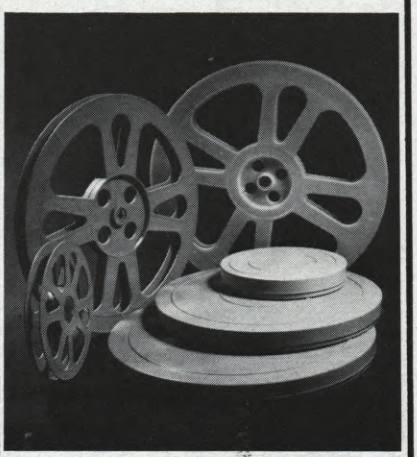

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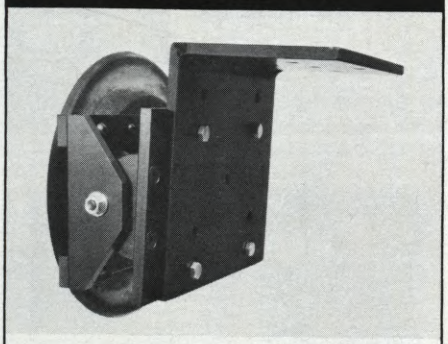

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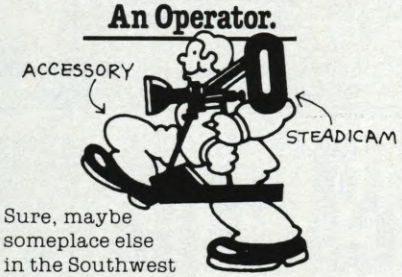

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skirt. Proper placing of the base plate is to me very important. If the skirt is filled with a circular plate at the base, the heat of the lamp will suck the skirt up and a fire could easily be caused, plus the fact that the lamp is not as efficient, since all the light that is on the inside of the skirt is lost because the plate at the base is cutting it off. If the base plate is left inside the skirt so that one can see up into the skirt, one gets the additional benefit of ventilation, which keeps the skirt cool, and also the additional light which is on the inside of the silk. A lot of mistakes are made by sealing the base of the skirt. It sucks the thing up.

QUESTION: It's actually a safety factor to leave a space around it?

MORRIS: That's right and, also, you get more light out of it. You get the light coming from inside, as well as the light coming through on the outside.

QUESTION: In other words, you are getting a certain amount of direct light plus the reflective light from the base plate.

MORRIS: That's right, but you never actually see the bulb; you mustn't actually see the bulb, because that would give you the shadow—so you are getting light on both sides of the silk. In a sense, it sort of leaks around the edges. No direct view of the bulb.

QUESTION: Now, what about the Astoria Studio? I know that it's a very old studio that's been sort of "demothballed" of late to be used again after all these years of disuse. That being the case, was there any problem in rigging it for the very modern technology and equipment you were using?

MORRIS: The extraordinary thing about the Astoria studio is that there was no problem in putting a modern rig into the stage. It was a wonderful piece of luck on my part that this occurred, but, in fact, it is perfectly possible to shoot in the most modern way in that quite old studio. Lights can be hung from the ceiling if required. There is a lot of room, a lot of air, a lot of freedom to put lights up and there are several stages of various shapes and sizes. There are the facilities to put in projection theaters, although at the moment they are not there, but the whole complex, with money, of course, could very easily be converted into a very modern studio complex. The one problem is that there is no studio lot of any consequence, and that may prove to be a disadvantage to some studio pro-

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ducers, but as far as studio facilities are concerned, I was perfectly at home and very happy to be shooting there and I didn't feel inhibited in any shape or form.

QUESTION: To what extent did you use camera movement in this film and did you use it in any special way, any unique way?

MORRIS: Sidney felt that the camera movement in "THE WIZ" should not, in any way, be obtrusive. He'd studied a lot of the old wonderful MGM, RKO, Fred Astaire and Ginger Rogers musicals and we were all very impressed with the way they were shot in those days. In fact, I don't think one could do better with those particular subjects if one were to reshoot them today. There was one overriding factor in all of the old musicals that we looked at, which was that the camera movements were very, very simple. If the dancing is spectacular, it doesn't need any help from the camera to make it any better. I mean, the movement of the camera doesn't make a tap dance (particularly from Fred Astaire or Ginger Rogers) any more spectacular. The entertainment and the skill is in the work that the artists themselves create and it doesn't need any assistance from any technician at the back of the camera. We all agreed that, in most of the numbers, the shooting would follow that sort of pattern and remain very simple. Therefore, there is nothing complex in the way of camera movement in the dance or musical numbers of "THE WIZ", because we could really believe that the choreography—the dancing itself—would express all that was required without any help from us. And that definitely did happen.

QUESTION: Now, you did have some extensive exterior sequences, such as the one at Coney Island and the one on the Brooklyn Bridge. Did you use any radically unusual techniques in shooting them?

MORRIS: In Coney Island we shot the Giant Cyclone rollercoaster for one of the sequences and the only addition we made to that was, as I previously stated, the use of the Lightflex. That was definitely one of the sequences in which the addition of the Lightflex did the most extraordinary things. It took the stark reality out of the background and yet one could still recognize it for what it was—namely, the Coney Island Cyclone. As far as the Brooklyn Bridge was concerned, Albert Whitlock did some fantastic things there, but I think it would be improper of me to try to describe in detail what he did because he is far better able to do that than

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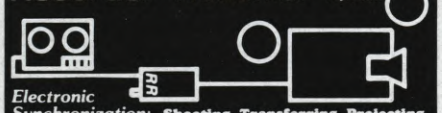

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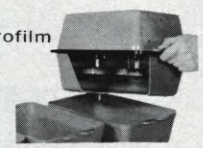

I, and I can only recommend that people go to see the movie and judge for themselves.

QUESTION: Speaking of Al Whitlock, to what degree and in what way did you have to coordinate your shooting in order to complement his matte paintings?

MORRIS: Well, I'd like to put it the other way around. We asked Albert if he could, in fact, match with his paintings and his overlays the style that we were giving to the film. We didn't want to have to change the style because of the problems that might arise with matte paintings and I must say that Albert told us to go ahead and be completely free to express ourselves visually in the way we wanted and he would match it. And, having seen the finished film, he's kept his word. How he's done it I don't know, but he's matched perfectly the style that we decided to use in the movie and I owe him a great debt of gratitude.

QUESTION: As far as filtration is concerned—and now I'm not speaking of color filtration, but rather of such things as low contrast, fog and diffusion—to what degree did you use these, if you did?

MORRIS: Well, during our initial tests with the Lightflex, we found—and I suppose it's basic common sense that this would happen—that the heavier diffusion or fog filter that we put on the camera, the more effective the Lightflex would be. We discovered the fact that without anything on the camera, it was surprising how little the color overlay showed up. Therefore, I had to produce a graph of diffusion and/or fog filters to be used throughout the entire filming that would enhance the effect of the Lightflex, and this varied considerably from scene to scene, depending upon the dramatic content of the scene. For reasons of script and story line, some of the sequences are completely clear and have nothing on the lens at all, but that was done to emphasize a particular dramatic story point. Other sequences have a very strong color overlay. It really all boiled down to what the script required, but to make my life a little simpler, I asked Tony Walton to give me a color breakdown in very simple shades, of every sequence in the picture. I hung this up in the camera room and it really served as my color bible, because I knew that there was a color pattern running through the entire picture which varied considerably from sequence to sequence but, in toto, made sense. Therefore, when we were required to

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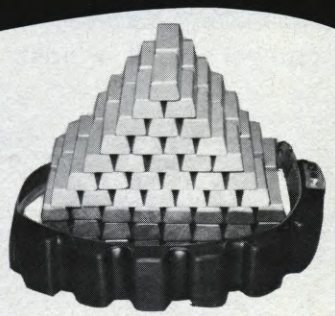

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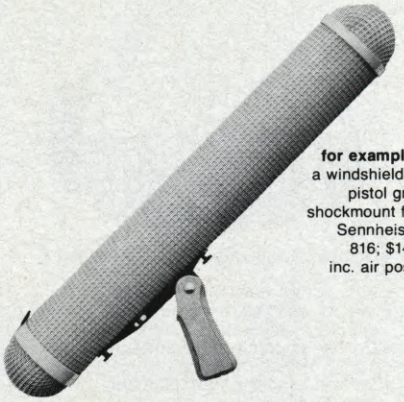

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shoot out of continuity, I merely referred to my chart of color splashes and was able to immediately pick up where we were and how much color overlay would be required. In other words, I felt that it was like a shooting script, but it was done in color and not with words, and I found this to be a great help.

QUESTION: Did this breakdown prepared by Tony Walton consist of sketches with colored gels overlaying them, or what form did it take?

MORRIS: Instead of doing set-up sketches, he did splashes of color in small frames, indicating roughly the proportions of color in the sets. The dominant colors in a particular set might be ¾ blue and ¼ black. The next one would be ⅓ red, or ⅓ gold and ⅓ white. Knowing this, I could form an idea of how to approach each sequence. Otherwise I would have been completely at sea, because the project was so vast and it was so important to have a color pattern flowing the right way through that it would have been madness to start off by arbitrarily saying, "These are the colors for this sequence. Those are the colors for that." It would never have worked. Tony's color breakdown was something unique and very, very useful.

QUESTION: "THE WIZ" is the third picture you've made with Sidney Lumet. Could you give me some idea of your method of working with him?

MORRIS: As you say, I've done three pictures with Sidney so far, but each one of them has been completely different and that is the exhilaration and thrill of working with a man of Sidney's caliber. I know that what has happened previously will not necessarily happen on the next occasion, and this was certainly the case with "THE WIZ". When I photographed "EQUUS" with Sidney, the camera never seemed to be still for one moment. We were tracking here, there and everywhere. But as I've explained previously, in this picture, because of the nature of the subject matter, he decided that fixed, fairly static set-ups were the order of the day and that the dancing and choreography should express the movement. I think that works in this film, but it is completely different to "EQUUS". As far as my working relationship with Sidney is concerned, it is basically a very simple one. He feels as director, that he has the right to get the set-ups and this I will defend all the time. I feel that if any director wants to get the set-ups he has this right and no cinematographer should stop him. On the other hand, he

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respected the fact that I had a right to comment on a particular set-up if I was not happy. I exercised this right and he respected this. Sometimes he agreed and sometimes he disagreed and that was the basis of our relationship. I might work with another director who lets me get the set-ups and work out the camera movement for him, while he concentrates on the directing of the actors. Sidney doesn't work that way. I respect this. I admire him for it and I'm perfectly happy to work that way. If anything, it saves time, because while he is getting the set-up with the operator, whom I always trust with Sidney, I can be getting the lights roughed in and very often I've been ready as soon as the camera has been ready. In fact, sometimes I've been ahead of the camera and this has often become a great joke on the set, which all helps to keep the picture moving fast.

QUESTION: Were you given the opportunity to participate in the grading [timing] of "THE WIZ"?

MORRIS: Yes, I was asked to come to Hollywood to produce the answer print of the movie. I not only feel that this is a great honor, but I believe it is the way a cinematographer should be allowed to operate. I'm deeply in Sidney Lumet's debt for allowing me to do this and, indeed, I must also thank Universal Pictures. So often in my career, especially in the early days, I have been forced to let the picture go out of my hands and be placed with a laboratory, who, through no fault of their own, have had no real idea of what I was trying to express and who have tried to produce an answer print along the lines that they thought I would like. This has proved disastrous. In the case of "THE WIZ", I was allowed to come to California to work very closely with Technicolor, who are handling the printing. I had absolutely no interference from anybody at all. I was trusted by my director and my producer and the result is going to be what I think "THE WIZ" should look like. That puts a great responsibility on my shoulders, but it is a responsibility that I much prefer to shoulder, rather than leave it to other people. I think it is unfair for a grader in a laboratory to be asked to produce something from a piece of negative about which he has no real idea, because he's not been as close to the movie as I have. I also think it is a responsibility that every cinematographer should bear and, I'm sure, would wish to bear, if allowed to do so. Therefore, I feel that I was very fortunate in being allowed to come to Hollywood and produce the answer print of "THE WIZ" as I would like audiences to see it. ■

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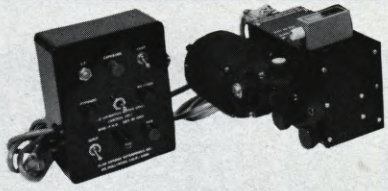

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Date of Filing: October 9, 1978.
Frequency of issue: Monthly. Annual subscription price: $9.
Number of issues published annually: 12.
Location of known office of publication: 1782 N. Orange Dr., Los Angeles, CA 90028.
Location of the headquarters or general business offices of the publishers: Same as above.
Names and addresses of Publisher: A.S.C. Holding Corp., 1782 N. Orange Dr., Los Angeles, CA 90028; Editor: Herb A. Lightman, 1782 N. Orange Dr., Los Angeles, CA 90028; and Managing Editor: None.
Owner: DNA.
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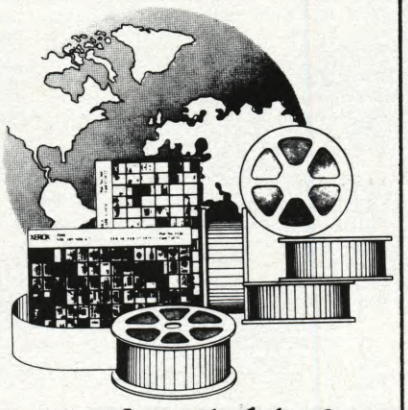

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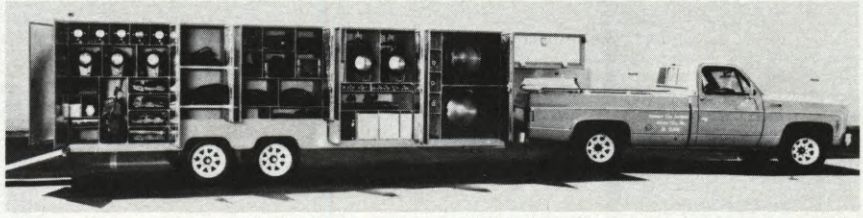

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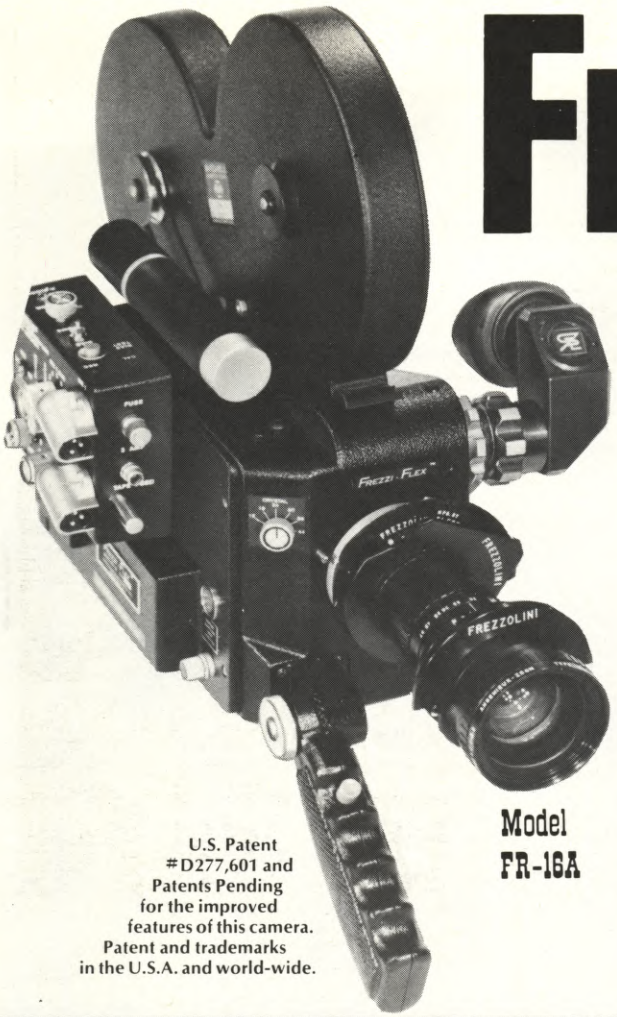

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